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Section of History of Medicine.

President: Associate Professor K. F. Russell, M.B., M.S., F.R.A.C.S., Victoria.

Vice-Presidents: J. O. Poynton, M.A., M.D., M.R.C.S., L.R.C.P., South Australia; C. Duncombe, M.B., B.S., F.R.C.S.E., Tasmania.

Honorary Secretary: R. J. Connolly, M.B., B.S., M.R.C.P.E., Tasmania.

The Anatomical Plagiarist.

K. F. RUSSELL (Victoria) took as the subject of his presidential address "The Anatomical Plagiarist". He said that there were many notable examples of plagiarism in anatomical literature, which affected both plates and text. The illustrations of Vesalius were shamelessly used over and over again by many authors. Thomas Vicary copied from an English translation of de Mondeville. John Browne used the text of Molins and the plates of Casserius in his book on the muscles. William Cowper boldly used Bidloo's plates while the latter was still alive. Alexander Monro (Primus) was victimized by the unauthorized use of his lectures on comparative anatomy, and after his death his lectures on the history of anatomy were plagiarized by William Northcote. It was not until the eighteenth century that an author obtained any copyright over his own works.

The First Successful Operation for Perforated Peptic Ulcer.

R. S. LAWSON (Victoria) read a paper on the first successful operation for perforated peptic ulcer, which had been performed in 1892 in Barmen, Germany, by Dr. Heusner, and reported later by his colleague, Dr. Kriege. The patient had a long history of peptic ulcer with episodes of melæna. On May 18, 1892, he awoke at 2 a.m. with agonizing abdominal pain. Dr. Kriege made the diagnosis, summoned Dr. Heusner back from his holiday, and made preparations in the patient's home for the operation, which

was begun at 6.30 p.m. After many difficulties the perforation was located high on the anterior gastric wall and was oversewn. Daylight then began to fail, but candles were brought and the operation concluded about 9 p.m. The patient later developed empyema, but eventually made a complete recovery. Dr. Lawson said that Dr. Kriege's report was an inspiring document, recording in modest terms the courage, tenacity and devotion of the two doctors in that historical pioneering performance. It had been published in *Berliner klinische Wochenschrift* (1892), Number 50, at page 1244.

C. CRAIG (Tasmania) raised the question of when the practice of operating in the home had ceased. He thought that it was about the time of World War I. He said that Dr. Ramsay in Launceston had often gone into the country to operate. Dr. Ulverstone had had a folding operating table. Professor Willis, before he went to the Alfred Hospital, had practised in Lilydale, near Launceston. He had performed a hysterectomy by lamplight in the patient's home. Dr. R. Syme had said that as late as 1931 Sir Thomas Dunhill had had a large car with a complete operating kit which he took to the homes of the aristocracy to operate because they would not go to the hospital.

W. E. L. H. CROWTHER (Tasmania) said that before the first World War, if a young man felt that he had a vocation for medicine he could work at the Royal Hobart Hospital for ten guineas. At the end of that time one really knew if one was interested in continuing with medicine. Dr. Crowther said that his own father used to do hæmorrhoidectomies with clamp and cautery. He had no recurrences in his practice.

G. M. W. CLEMONS (Tasmania) said that he had assisted his father with an amputation of the thigh as late as 1934.

W. E. L. H. CROWTHER said that he had given an anæsthetic for Dr. Scott to perform a colostomy operation in 1915.

The Turn of the Century.

J. ORDE POYNTON (S.A.) read a paper entitled "The Turn of the Century". He said that the period from 1880 to 1920 was a turning point in the history of medicine, during which developments took place that had proved the foundation of a new era—that of scientific medicine replacing clinical medicine. The development of microbiology, the application of serological techniques, the rapid evolution of biochemistry and the development of instruments to measure alterations in body functions were among the factors that had contributed to that extraordinary progress. As a result, the efficacy of medical practice in saving life had increased more in the past half century than in the whole of its previous history. Dr. Poynton showed a series of portrait photographs of some distinguished physicians and surgeons who had lived through, and in their own ways contributed to, that period. Those who were universally known were admitted, and the names of some of those shown were already more or less forgotten. Dr. Poynton gave brief biographical notes with the photographs, together with short accounts of some of the subjects' particular contributions to medical science and practice.

Three-Quarters of a Century of Peptic Ulcer Surgery.

W. W. WOODWARD (Tasmania) read a paper entitled "Three-Quarters of a Century of Peptic Ulcer Surgery". He said that the first partial gastrectomy for ulcer had been performed in 1881 by Rydgier of Poland. That was the year in which Theodor Billroth of Vienna had performed the first successful partial gastrectomy for carcinoma. Again in the same year the first successful gastro-jejunostomy, also for cancerous obstruction, was performed by Wolfler, Billroth's assistant. Several years passed before gastro-jejunostomy was advocated for the treatment of ulcer. The early success of gastro-jejunostomy in ulcer led to undue widening of its indications, which had subsequently required narrowing. Wedge and sleeve resections, pyloroplastics, pyelorectomies and resections preserving the excluded pyloric antrum were substituted for gastro-jejunostomy, but were no more immune from the complication of recurrent ulceration. Dr. Woodward said that study of the history of those operations should prevent their general readoption. By the end of the first World War, partial gastrectomy had become established on the Continent of Europe. Later it was accepted in England and the U.S.A. Variants of the procedure were still under discussion. Vasoligation disappeared before it had been generally adopted. Vagotomy, like gastro-enterostomy, had been welcomed too loudly, and since then had waned, though it was occasionally used.

A. E. LEE (Queensland) said that he could wish that Dr. Woodward had said more about the theoretical basis for the operations. If the deliberate surgery of ulcer was being considered, he thought that the start had been made too early. At least till 1900 partial gastrectomy had been concerned with the ablation of tumours, and gastro-jejunostomy with the relief of pyloric obstruction. As laparotomy became safer, but the diagnosis of chronic abdominal pain in the absence of gastro-intestinal radiology was still imperfect, vast numbers of gastro-enterostomies were performed with poor results. In an attempt to duplicate the good results of ulcer obstruction, various means of artificially stenosing the pylorus were devised, but naturally with no better results. With regard to the recrudescence of partial gastrectomy for ulcer in Central Europe, it was not done at all for the modern reasons (if in fact the operation was other than empirical), but because it was thought that the symptoms were due to an associated gastritis and that the ablation of that condition was necessary for the cure of duodenal ulcer.

C. CRAIG (Tasmania) mentioned the large numbers of gastro-enterostomies that had been performed at Hobart.

R. LAWSON (Victoria) said that Dr. Woodward's paper illustrated the practical value of medical history. He thought that no one should take up gastric surgery without studying the history of the subject and without following up the case records of his own hospital. He would then understand why certain procedures had been abandoned.

Dr. Woodward, in reply, thanked Dr. Poynton for the picture of Sir Mayo Robson that he had shown during his paper. He also said that he valued greatly Dr. Lee's comments on the early history of the operations and on black bread gastritis in Germany, Dr. Craig's remarks on gastro-enterostomy in Hobart and Dr. Lawson's remarks on the practical value to the gastric surgeon of the history of gastric operations.

Section of Medicine and Experimental Medicine.[1]

President: Sir Ralph Whishaw, Kt., C.B.E., M.B., Ch.M., F.R.C.P., F.R.A.C.P., Tasmania.

Vice-Presidents: W. E. King, M.D., B.S., F.R.A.C.P., M.R.C.P., Victoria; H. Maynard Rennie, M.B., B.S., F.R.C.P., F.R.A.C.P., New South Wales; L. D. Walters, M.D., M.R.C.P.E., M.R.A.C.P., Queensland; E. McLaughlin, M.B., B.S., M.R.C.P., M.R.A.C.P., South Australia.

Honorary Secretary: G. A. Robbie, M.D., B.S., M.R.A.C.P., Tasmania.

Common Pitfalls in Relation to Heart Disease.

R. WHISHAW (Tasmania) took as the subject of his presidential address "Common Pitfalls in Relation to Heart Disease". He said that the first pitfall for discussion concerned the misinterpretation of symptoms. The mistaking of functional symptoms for those of organic heart disease continued to be surprisingly common, and might be more disastrous in its consequences than overlooking early organic changes. A cardiac neurosis started in that way, and when fully developed might cause untold misery to a patient and his family. Such a train of events was fatally easy to produce and very difficult to cure. It was well to bear in mind that the public had been made heart-conscious by the daily Press. They knew that heart disease was "Number 1 killer", and they came for examination with fear in their hearts. A quite definite opinion was therefore necessary, and if there was any doubt, it should not be stated. A doctor was not justified in voicing his fears to his patients without good evidence. The main reasons for mistaking psychosomatic symptoms for those of heart disease did not include lack of knowledge, but lack of time given to the patient's story, and also to the similarity of the symptoms. Anxiety, or "fear spread out thin", might produce some or all of the symptoms of heart disease, and two of the signs—breathlessness, pain in the chest, palpitation and irregularities and fatigue, heart murmurs and increased blood pressure readings. Sir Ralph Whishaw proposed to discuss each of those briefly, from the point of view of the general practitioner who was pressed for time.

Referring first to breathlessness, whether organic or functional, Sir Ralph Whishaw said that to the direct inquiry "Are you short-winded?" the average person said "Yes", because everyone was breathless after sufficient effort. Was it the type that anyone experienced when he hurried to catch a bus, or the type that came on without effort, so that the patient felt that he could not get enough air, or a deep enough breath? If it was the latter, it was usually confirmed by the patient's demonstrating by taking a long sigh. Those simple points might be missed by hurrying through the history. With regard to the pain in the chest, Sir Ralph Whishaw said that there were 30 possible causes of pain in the chest, but the most frequent, in his experience, was the "heart-ache" of the psychoneurotic. That was described as a dull ache beneath the left breast, interspersed with sudden sharp stabs of pain. The ache might last for hours, and occasionally spread to the left arm, but not to the throat or jaws. It was not precipitated by effort, but might be aggravated by rushing and bustling, because such activity was often a symptom of agitation. That pain was sometimes mistaken for angina. The opposite error—that of mistaking coronary pain for psychogenic disturbance—was less common, but he had heard doctors say: "I thought of angina, but there were no clinical signs of heart disease; the blood pressure was normal, and the radial arteries soft." Perhaps he did not need to remind them that from 50% to 70% of people with uncomplicated coronary sclerosis showed no physical signs, and their resting cardiograms were normal. Sir Ralph Whishaw then discussed palpitation and irregularities. He said that "palpitation" required elaborating. Did the patient mean rapid regular heart action, missed beats, slow heavy thuds, or just heart-consciousness? Emotional tachycardia had to be distinguished from the very rapid heart rate of paroxysmal tachycardia and also toxic goitre. Irregularities, especially when described in fanciful phrases such as "like a bird fluttering in my chest", or "my heart seems to stop and then give a bang", were usually due to harmless ectopic premature beats. However, they could be very disturbing, and adequate explanation and reassurance were important. Premature beats when frequent, and when not conforming to a pattern, simulated auricular fibrillation. Exercise would usually stop them temporarily, and allow bedside diagnosis. Complaints of slow heavy thuds during the night were characteristic of hypertension.

Turning to murmurs, Sir Ralph Whishaw said that organic murmurs provided numerous pitfalls, but the subject was too vast to discuss at the meeting. Functional murmurs were common and required careful assessment, so that the patient was left with no doubts in his mind. If a murmur was soft, not above grade II and systolic in time and varied in intensity with posture or respiration, and if there were no signs of heart disease, it should be classified as innocent. Fatigue might be due to some systemic disease, or psychological. The latter was the more common, and was often due to simple boredom with routine. Psychoneurotic fatigue was not relieved by rest. The patient said that he was even more exhausted in the mornings than in the evenings—in fact, he felt a little better towards evening. That information was so characteristic that it was useful in differentiating the two types of fatigue.

Sir Ralph Whishaw then referred to abnormal blood pressures. He said that a new patient would sometimes announce, with an air of satisfaction: "I have low blood pressure." The reply should be "Congratulations", because, *per se*, that was surely not a clinical entity. The symptoms that had given rise to that diagnosis usually turned out to be, once again, those of psychoneurosis—light-headedness, dizziness, faint sensations and fatigue. Another label, which women seemed to like, was "tired heart"—so to malign such a tireless organ! Those present would agree that functional symptoms were very common among New Australians, who had lived in fear for so long. They deserved all the help and reassurance they could be given.

Discussing hypertension, Sir Ralph Whishaw said that it was so fraught with pitfalls that the public would no doubt benefit if physicians discarded their sphygmomanometers altogether. The apprehension associated with medical examinations was reflected in false increases in blood pressure, and it was strange that that apprehension might persist for years in some people, even with a friendly doctor-patient relationship. Essential hypertension should therefore not be diagnosed without a period of observation. Sir Ralph Whishaw was convinced that a patient was better off if all information regarding his blood pressure was withheld. That applied not only to mild, but also to moderately severe hypertension. An error of less importance was to fail to recognize hypertension because of a wide auscultatory gap. A doctor in a hurry might blow up the cuff, to perhaps 190 millimetres of mercury without a finger on the pulse, and hear no sound until the pressure reached 150 millimetres or so. The gap might begin only 10 millimetres below the true systolic pressure, but it was usually 20 or 30 millimetres

below, and it ended 20 to 60 millimetres above the diastolic pressure. Sometimes the malignant phase of hypertension was thought to be present because of high readings. The proof, of course, was a downhill course, presence of papilœdema and cardiac and renal complications. Benign hypertension often remained benign for 20 years, and it was amazing how women could withstand very high pressures without complications for long periods. Ménière's syndrome was sometimes mistaken for some form of heart seizure. The attack came "out of the blue", with severe giddiness and objective rotation, and the victim might fall. He lay still, as any movement aggravated the vertigo and caused vomiting. He was pale, sweating and frightened. There was usually a history of unilateral tinnitus and deafness, but the patient was too ill to volunteer that information. By the time the doctor arrived, the worst was over. He noted the pallor and slow pulse, and thought of heart block and Stokes-Adams attacks, or some other form of heart complaint. Another condition of importance, because it was reversible, was thyrotoxic heart disease. That was often missed because it was not thought of. It was in the elderly that the condition was prone to be mistaken for ischæmic heart disease with congestive heart failure. The presenting symptom was usually breathlessness. The aging heart might not beat rapidly, and there were seldom eye signs, other than a slight stare. The thyroid gland might not be palpably enlarged, but a small nodule was present, sometimes hiding behind the manubrium, and could be felt when the patient swallowed. Weight loss was the rule, and there was usually a high pulse pressure.

Sir Ralph Whishaw then said that the only two errors in treatment he wished to mention were unnecessary treatment of hypertension and abuse of digitalis. In his opinion, the treatment of mild and moderately severe hypertension with powerful hypotensive drugs was poor practice. Side effects were troublesome and even dangerous, and there was little evidence that they altered the prognosis in benign hypertension. Those drugs should be reserved for patients whose condition was deteriorating, or who had developed complications or entered the malignant phase. It was not uncommon for a patient to be given digitalis and told that he must continue the drug for the rest of his life, or to take a tablet three times daily, with no instructions regarding reduction to a maintenance dose. Many trusting patients did as they were told until they became poisoned. Another mistaken practice was to give the drug to elderly people with auricular fibrillation and a slow ventricular rate. It was unnecessary in such cases and often upset them, whereas if they were left alone they might live for years pottering about quietly, without signs of heart failure. Another unwise procedure was to persist with digitalis in spite of nausea and failure to control the ventricular rate. Digitalis was a valuable drug, but it was not indispensable in heart failure.

Sir Ralph Whishaw said in conclusion that he was conscious of having laboured the point of the importance of nervous factors in treating people with supposed or actual heart disease, but it could not be over-emphasized. Finally, the second point of importance could be summed up shortly. The three special senses of greatest value to the clinician were sight, touch and hearing, but the greatest of those was hearing—valuable in assessing murmurs, but invaluable in registering the patient's story.

Disseminated Lupus Erythematosus.

IAN R. MACKAY (Victoria) read a paper entitled "Modern Concepts in the Diagnosis, Management and Prognosis of Disseminated Lupus Erythematosus". He said that there was an increasing awareness that many clinical variants of disseminated *lupus erythematosus* (D.L.E.) might exist. The disease might take a fulminant course, or be of a relatively mild or atypical type with but few organ systems involved, thus giving rise to concepts such as "benign lupus" and the "lupus diathesis". Although the L.E. cell test represented a great diagnostic advance, positive findings from tests occurring in conditions which were not classical D.L.E. posed difficult problems.

Dr. Mackay went on to say that of patients attending the Royal Melbourne Hospital over the recent five-year period, the diagnosis of D.L.E. could be considered, on the basis of a positive result to the L.E. cell test, in 62 cases; in 30 of those cases the patients had been under close continued observation. In 28 of the 62 cases there was a classical clinical picture with diffuse multisystem involvement. Twelve of the remaining 34 patients were in the group designated as having lupoid hepatitis (chronic hepatitis with a positive finding in the L.E. cell test), six others had rheumatoid arthritis without other significant visceral manifestations, and 16 had a mild or quite atypical clinical picture.

Discussing immunological investigations, Dr. Mackay said that the autoimmune complement fixation test, a new serological reaction, developed in the Walter and Eliza Hall Institute of Medical Research, might prove to have considerable diagnostic value. The serum of patients with D.L.E. exhibited complement fixation with antigens derived from homogenates of human tissues, particularly human liver and kidney. The serum factor responsible was presumably an autoantibody. The result of the test was positive in 20 out of 26 classical cases of D.L.E., and less frequently so in atypical cases. Among normal subjects 3% reacted in weak titre. Turning to the question of the demonstration of antibody globulin binding in renal glomerulus, Dr. Mackay said that fragments of kidney tissue obtained by percutaneous renal biopsy were stained with a rabbit antihuman gamma globulin antibody coupled with fluorescein in an attempt to detect human antibody globulin bound to glomerular structures. Glomerular fluorescence in ultraviolet light was considered indicative of a persisting antigen-antibody reaction taking place in the glomerulus. Such fluorescence was obtained in all but one of the cases of D.L.E. with glomerular involvement. Controls, including normal subjects and 12 patients with the nephrotic syndrome due to other causes, gave negative findings.

On the question of therapy, Dr. Mackay said that cortisone therapy of D.L.E. was being evaluated in 12 patients with classical D.L.E. who had been under close observation for periods up to five years. Ten of the patients were living useful and unrestricted lives on cortisone dosages ranging from 50 to 150 milligrammes per day; two of the patients had died of the disease. Side effects had caused little concern. The present tendency was to continue maintenance therapy indefinitely, even when patients were in good clinical remission.

Discussing prognosis, Dr. Mackay said that severe visceral involvement in D.L.E. carried a poor prognosis. Six out of twelve patients with lupoid hepatitis had died of their disease. Renal involvement in patients with classical D.L.E. represented their gravest hazard. Serial percutaneous biopsies of the kidney had been used to assess the presence and prognosis of the glomerular lesions of lupus nephritis, particularly in patients having cortisone therapy. A renal lesion was present in eight out of twelve patients so studied; the lesion appeared to be arrested in three patients and it progressed slowly despite therapy in five patients, two of whom died of renal failure.

W. R. PITNEY (Western Australia), in opening the discussion, said that several workers claimed to have demonstrated antibodies in serum samples from patients with disseminated *lupus erythematosus* which reacted with cell nuclei, and a complement fixation test had been described. It did not seem to matter from what tissue or indeed what species the nuclei were derived. The nature of the antigen in cell nuclei was not known. It did not appear to be desoxyribonucleic acid (D.N.A.), although antibodies against D.N.A. had been described also. The concept of anti-nuclear antibody made the L.E. cell phenomenon more intelligible. It also gave support to an argument to include disseminated *lupus erythematosus* among the autoimmune diseases, and perhaps made it easier to understand why those patients might also develop autoimmune hæmolytic anæmia and autoimmune thrombocytopenia. The frequently positive Wassermann reaction in disseminated *lupus erythematosus* was also possibly due to

an anti-nuclear reaction which fixed complement. Dr. Pitney went on to say that if it was accepted that the L.E. cell phenomenon was a manifestation of an anti-nuclear antibody in the serum of those patients, then an explanation could be put forward for the occasional demonstration of L.E. cells in other diseases which might be also of an autoimmune nature, such as chronic viral hepatitis, rheumatoid arthritis and drug sensitivity. He thought the term "lupoid hepatitis" was perhaps ill chosen and should be replaced by another. The term "disseminated *lupus erythematosus*" could also be replaced by another which conveyed the autoimmune nature of the disease. Dr. Pitney finally asked Dr. Mackay whether he thought it best to keep patients with disseminated *lupus erythematosus* on maintenance therapy with steroids, or to use those drugs only in exacerbations of the disease. If he did employ long-term steroid therapy, did he think it necessary to give a course of ACTH from time to time?

JOHN COLEBATCH (Victoria) asked Dr. Mackay whether he thought that the prognosis was the same in all age groups. He said that in pædiatric circles it seemed to be the usual experience that children with the disease were never cured.

The Whole Man.

ROBERT SOUTHBY (Victoria) read a paper entitled "The Whole Man, or Body, Mind and Spirit in Medicine". He referred to the changing tide of opinion over the years about the explanation of the basis of illness, and said it varied from the dogmas of ancient times to the extreme views of the early Christians, who regarded ill health as a visitation on account of sin, and would not accept any scientific basis. The pendulum had then swung completely to the purely material attitude that accompanied the numerous scientific discoveries and revelations relating to disease. The next phase was the acceptance of the psychiatric aspect of many of the problems. More recently, many had accepted the importance of the spiritual factor, in addition to psychosomatic factors. Dr. Southby quoted examples from clinical practice. He finally submitted that the best service could be rendered to the patient if he was always regarded as the whole man, with a body, a mind and a soul or spirit.

B. H. PETERSON (New South Wales) said that he had appreciated Dr. Southby's courageous paper. He agreed that doctors needed to remind themselves that there were factors over and above those they thought of as scientific which influenced patients and their illnesses. In addition to the physical and psychological, many doctors believed that there were moral and spiritual aspects of personality and its disorders and diseases. It was in those latter aspects that their colleagues the clergy specialized. Dr. Peterson said that he wished to underline Dr. Southby's plea for practical cooperation with clergymen so that the needs of "the whole man" could be met. He supposed that it was the general practitioner in the parish and the psychiatrist with whom such cooperation most often occurred; but all doctors could participate. Most of them had good friends among the clergy, and the war had taught them to live and work more with the padre. One of the conditions of useful cooperation, in his opinion, was that the doctor should know personally the clergyman and his approach, otherwise misunderstandings all too easily arose. There were many other problems of cooperation, such as sectarian problems; but in that context he wished to underline the need for doctors and clergy to understand more of each other's terminology and methods. That could be encouraged at the undergraduate level. Dr. Southby had told them how the chaplain at the Royal Melbourne Hospital gave lectures to medical students. Dr. Peterson congratulated the hospital on encouraging that procedure, and also on arranging courses for theological students on the main physical and mental illnesses and on hospital organization. Dr. Peterson said in conclusion that he would like to see all large Australian teaching hospitals arrange similar courses, which should facilitate future cooperation between the two professions.

Gastritis and Gastroscopy.

Gastroscopy: A Review of 1100 Cases.

W. E. KING (Victoria) presented a review of 1100 cases in which gastroscopy had been employed. He said that since Schindler in 1932 first designed the gastroscope, many modifications, especially those of Taylor, had led to great improvement in the diagnostic accuracy and simplicity of the technique. Gastroscopic examination could be performed in a severe case of hæmatemesis without moving the patient from his bed. Among many other uses, probably the most practical use of the procedure was in distinguishing between the chronic gastric ulcer and the malignant ulcer. Gastroscopy was the only accurate means of diagnosing acute gastric ulcers. Not infrequently, the deformity seen radiologically in the pyloric region was found on gastroscopic examination to be due to spasm or old scarring. Considerable numbers of ulcers, innocent or malignant, might be detected on gastroscopic examination when they had not been visualized radiologically with the use of barium. Combined radiology and gastroscopy led to a marked increase in diagnostic accuracy in diseases of the stomach.

Aspects of Chronic Gastritis.

LEON TAFT (Victoria) read a paper entitled "Aspects of Chronic Gastritis". He said that over the past decade, gastric biopsy technique had made possible observations of the natural history of chronic gastritis. Sampling error, though present, was small. Changes in the mucosa included epithelial damage, regeneration, glandular atrophy and cellular infiltration. While in many cases gastritis was symptomless, it frequently produced symptoms. Those included diffuse epigastric pain and tenderness, anæmia and malnutrition. The total volume of gastric juice, acid, pepsin and mucus secretion was reduced, despite the apparent prominence of mucus in the juice and on the mucosa. Dr. Taft went on to say that factors in the development of chronic gastritis included age, sex, diet, alcohol intake, psychic stress, debilitating disease and X-ray irradiation. Localized gastritis might initiate peptic ulceration, but did not seem to predispose the subject to the development of carcinoma. Anæmia was usually due to malnutrition or bleeding, but pernicious anæmia might develop owing to lack of intrinsic factor. Reassurance of the patient that malignant disease was absent was important in treatment.

Discussion.

I. R. MACKAY (Victoria), in opening the discussion, said that gastroscopy was of value (i) in the differentiation of benign and malignant gastric ulcers (but gastroscopic follow-up was important in apparently benign lesions), (ii) in hæmatemesis, as had been shown by Dr. King's finding of 20% of acute ulcers in cases of upper gastro-intestinal hæmorrhage (but the examination must be made within three to five days of the hæmorrhage), and (iii) in dyspepsia with negative radiological findings.

Dr. Mackay then said that chronic gastritis could be diagnosed gastroscopically only if there were thinning and atrophy of the mucosa, with visible vessels. Heavy folds seen through the gastroscope were usually found on gastric biopsy to represent normal mucosa. Hypertrophic gastritis rarely if ever occurred; what appeared to be true hypertrophic gastritis might well be due to neoplasm, particularly if the folds had an irregular non-linear pattern. The question had been asked whether prolapsed gastric mucosa could ever be diagnosed gastroscopically. Dr. Mackay said that cellular infiltration of the gastric mucosa in biopsy specimens might not necessarily represent gastritis, as the degree of normal lymphocytic and plasma-cell infiltration varied widely. Gastritis was directly associated with symptoms in only one-third of the cases, and, moreover, those symptoms might be little different from those found in other forms of disease of the upper part of the gastro-intestinal tract. Thus peptic ulcer, pancreatitis and gall-bladder disease should be ruled out before a diagnosis of gastritis was accepted as an explanation for dyspepsia. Gastritis with gross mucosal

atrophy might be responsible for unexplained blood-loss anæmia, particularly in the elderly. Bleeding occurred from vessels exposed by gross mucosal atrophy. X-ray examinations were non-contributory; but gastroscopy and gastric biopsy furnished useful diagnostic evidence for that situation.

T. KIRKLAND (Tasmania) asked Dr. King about the incidence of morbidity in his series, and about the preparation for gastroscopy of the patient who was having a hæmorrhage. Dr. Kirkland also asked Dr. Taft what was the accuracy of radiological diagnosis in gastritis.

LYLE BUCHANAN (New South Wales) said that he spoke with some diffidence as a surgeon amongst physician specialists; but he had had a long and successful experience in treating many patients with chronic gastritis. There was particularly the type of patient who had a deficiency of hydrochloric acid, and a long history, often dating back to the teens, of intermittent anorexia and nausea, of recurrent anæmia, of years of nervous and general debility, and very often of many and varied treatments with only temporary results. There was also the type of patient with similar symptoms (which had come on only after a severe accident), with much pain and insomnia, and with much fear of permanent economic or domestic disability. Those two types of patient usually had diffuse epigastric tenderness, roughly related to the stomach outline, and sometimes a more localized tender area suggesting a peptic ulcer, but usually without X-ray signs. Dr. Buchanan said that he had found that over 80% of those patients reacted rapidly and favourably to "Thalazole" (phthalylsulphathiazole). For various reasons he usually ordered it in a dosage of two tablets three times a day after meals and at night for four days only, and thereafter two tablets three times a day after food on Wednesdays and Saturdays only. By that routine he secured an immediate and marked clinical improvement in the four days, which was maintained by treatment for two days a week, without any of the by-effects of oversterilization of the gut. Over a period of 10 years he had seen neither sensitization nor immunity develop. He had many patients who wrote regularly to him from the country and even from overseas, asking for a repeat of the prescription. He had tried many alternatives as a check, and had found them less efficient or unsatisfactory. Dr. Buchanan, in conclusion, suggested that, in addition to giving sympathy and understanding in cases of chronic gastritis, as had been advocated at the meeting, they should at least give a fair trial to the method of treatment he had outlined.

Dr. Taft, in reply, said that it was the experience of members of his unit that a clinical diagnosis of chronic gastritis could be made in approximately one-third of all cases in which biopsy evidence of the disease had been found. Confirmation required the exclusion of other upper abdominal disease, a test meal examination and gastric biopsy. Dr. Taft reemphasized that the size of the rugæ was of no value in estimating the atrophy of the mucosa, so that chronic gastritis could not be positively diagnosed by radiological studies. Experimental work in animals had indicated that fortified wines and liqueurs taken on an empty stomach were capable of inducing acute gastritis. Dr. Taft finally said that in three cases of Sjøgren's disease associated with chronic gastritis, he had not encountered carcinoma of the lung. He did not think that that had previously been recorded.

Section of Naval, Military and Air Force Medicine and Surgery.

President: Surgeon Rear Admiral L. Lockwood, C.B.E., M.V.O., D.S.C., Q.H.S., M.D., B.S., R.A.N., Victoria.

Vice-Presidents: E. F. Thomson, M.B., Ch.B., F.R.A.C.P., F.R.I.P.H., M.C.P.A., New South Wales; R. G. C. de Crespigny, M.B., B.S., F.R.A.C.P., South Australia; C. C. Wark, M.B.E., M.B., B.S., F.R.C.S., F.R.A.C.S., Queensland; L. N. Golian, M.B., B.S., Tasmania.

Honorary Secretary: L. H. Jones, M.B., B.S., Tasmania.

Modern Aspects of Service Medicine.

L. LOCKWOOD (Victoria) took as the subject of his presidential address "Modern Aspects of Service Medicine". Discussing first underwater medicine, he said that the problems of underwater warfare were of great and increasing moment. In an article on diving medicine written by E. A. Lanphier, of the U.S. Navy Experimental Diving Unit, stress was laid on the necessity of knowing the potential dangers and observing the requirements for safety. The fact that thousands had equipped themselves with self-contained underwater breathing apparatus ("Scuba") did not give them immunity from the basic hazards of diving. However, the majority of accidents could be prevented or handled successfully if certain essentials were observed. Safe diving could never be accomplished by one man alone, however expert. The greatest safeguard in "Scuba" diving was the "buddy" system, each man of a pair being responsible for the other. An organized group effort was desirable for safe diving; in that sphere an interested medical officer could contribute much. Diving involved heavy exertion, and divers must be physically and psychologically fit. A good knowledge of the direct and indirect effects of pressure at depth was vital. The direct effect of pressure was that, on descent, air would be compressed, and on ascent, air would expand. In both, the greatest proportional change in volume occurred close to the surface. Thus descent to depth involved considerable crushing force. By contrast, on ascent, air expanded in reverse. Living tissue was damaged, not by great pressure, but by unequalized difference of pressure. Surgeon Rear Admiral Lockwood described in detail some of the injuries that could result from unequalized pressure. Discussing the indirect effects of pressure, he said that some of the most important arose from the increased partial pressures of the gases in the diver's breathing.

Admiral Lockwood then described the two types of breathing apparatus (open circuit and closed circuit), and mentioned nitrogen narcosis, which he said could be averted by the use of helium-oxygen mixtures for depths greater than 300 feet. Discussing decompression sickness (caisson disease, "the bends"), he described the mechanism of its production, and said that the treatment was recompression according to a well-recognized table giving times for staying at various depths. He then referred to oxygen poisoning, and said that in diving, if

the safe limits of exposure to high oxygen pressures were exceeded, the effect was that of acute central nervous system stimulation characterized by convulsions, which were sometimes preceded by muscular twitching, nausea, vertigo, restlessness, visual disturbances and paræsthesiæ. Tables were available giving the safe limits of times for breathing pure oxygen at various depths. Admiral Lockwood then briefly referred to other accidents and relevant conditions, including drowning, carbon dioxide intoxication, carbon monoxide poisoning, over-exertion, panic, shallow-water blackout, cold, and injuries from marine creatures, and described methods of dealing with them.

Turning to aviation medicine, Admiral Lockwood said that an outstanding problem was that of noise, especially in association with jet aircraft. The problems relating to aviation medicine would be discussed by other speakers.

Admiral Lockwood went on to consider space medicine, which he said presented many problems, relating, amongst other things, to crew space design, vision, temperature control, pressurizing and air purification, acceleration, noise and vibration, radiation, collision with meteors, the escape capsule, the effects of combined stresses (physiological and psychological) and the design of space suits.

Discussing atomic medicine and the effects of gamma and X irradiation, Admiral Lockwood said that the "2-4-6" rule was an excellent guide to the effect on exposed personnel of the acute dosage expressed in *r*: 200*r* resulted in 50% of personnel sick, with no deaths; 400*r* resulted in 100% of personnel sick, with 50% deaths; 600*r* resulted in 100% of personnel sick, with 100% deaths. In the last group, biological variation might result in a few recoveries. Radiological monitoring was of great importance, and certain broad rules-of-thumb had been adopted to simplify the readings obtained on radiac instruments. Admiral Lockwood gave examples of their use. He said that they did not replace radiac instruments, but could be of great help to a person caught in a situation in which he could not avail himself of the recognized methods. Admiral Lockwood stressed the need to avoid unnecessary exposure of service personnel to gamma or X rays, and referred to the idea of having hospitals, etc., built with one or two storeys underground, as a defence against the atom or hydrogen bomb. He also urged the dispersion and emergency planning of hospitals and the teaching of first aid with special emphasis on life-saving measures.

Admiral Lockwood finally referred briefly to questions of survival, service psychiatry, the uses of ultrasonics, decontamination of radioactive materials and the problems associated with the use of radar.

High Intensity Noise.

R. P. FREEMAN (Victoria) read a paper entitled "High Intensity Noise". He said that prolonged exposure to high intensity noise produced fatigue of the cochlea. With continued exposure, that fatigue became irreversible, producing damage to the cochlea; the first sign of that damage was shown on the pure-tone audiogram. There was no agreement as to what constituted a dangerous noise level. Attempts had been made to define levels of intensity which were safe; such attempts were useful in endeavouring to assess the possible risks to hearing from any particular noise. Surgeon-Lieutenant-Commander Freeman went on to say that the risks to hearing could be lessened by (*a*) reduction of the noise level at its source and (*b*) provision of personal protection. Subjects who were constantly exposed to high intensity noise should be regularly examined audiometrically, in order to detect any damage to the cochlea before severe deafness occurred.

NOEL E. H. BOX (Victoria), in opening the discussion, said that the speaker had stated the problem of noise level and its effect on hearing in a most complete manner. The difficulty in the services was to control the source of the noise. So far as protection was concerned, one of the problems was that personnel did not use the various types of protective apparatus. That arose either through carelessness or through the fact of sudden changes in conditions of noise which occurred in such a way that there was not time to fit the protective apparatus. Certain personnel, such as engine tuners, were forced to work without protection at times so that they could carry out their work properly. Ear plugs, to be efficient, must be uncomfortable. It was very difficult to police the wearing of protective apparatus. With every advance in engine construction there was increase in the noise problem. Most of the work done on the effects of noise had been done with constant noise. More was needed to be done on the effects of pulsating and impact noises. That was important in workshops. The effect of such noises on hearing was far from clear. The ear was not readily adaptable to that type of noise.

Another speaker asked Surgeon-Lieutenant-Commander Freeman at what point deafness became irreversible.

Commander Freeman replied that that could not be forecast; it depended on the susceptibility of the subject to noise, and that varied with the individual.

R. N. REILLY (South Australia) quoted the case of a boy aged 16 years who had become permanently deaf after one burst of machine gun fire.

R. M. COPLANS (New South Wales) said that the effect of noise from jet planes on an aircraft carrier had a radius of 40° on either side of the aircraft, and involved a great number of personnel. The Americans were employing deaf people. The Royal Navy was experimenting with noise-excluding helmets and transmitting orders from a central control through a transistor system fitted to the helmet.

Advances in Service Psychiatry Abroad.

J. E. CAWTE (South Australia) read a paper entitled "Advances in Service Psychiatry Abroad". He said that in 1956-1957, investigating current practice of service psychiatry, he had visited 16 military installations in the U.S.A. and in England. World War II statistics questioned the value of early screening out of potential mental casualties as a means of lowering the casualty rate within the services. On the other hand, psychological classification of men was part of efficient military functioning. Modern service psychiatry emphasized out-patient care, with avoidance of in-patient and excused-from-duty status. That emphasis was effective in lowering total disability in peacetime as well as in combat. Dr. Cawte discussed differences in application of that principle in the Navy as contrasted with the Army. He went on to say that psychiatric units of service hospitals needed to create a military rather than a hospital atmosphere. A vital part of therapy in those units was group work, aimed at strengthening the ties which bound together those in service. Dr. Cawte finally gave an indication of problems for service psychiatry in thermonuclear warfare.

W. D. REFSHAUGE (Victoria), in opening the discussion, said that he wished to emphasize, and to expand a little, only two points: (i) screening and selection, and (ii) treatment of neuro-psychiatric patients in the forward areas. Before the first World War, neuro-psychiatric casualties were insignificant. That was due to two factors: first, the type of warfare was not so intense as in World War I, and secondly, in cases of running away, desertion in the face of the enemy, etc., the culprits were shot. The latter had quite a salutary effect. With more humane treatment of soldiers, cases of "shell shock", "anxiety states" and "combat exhaustion" increased rapidly and so service psychiatry became a very important subject.

Major-General Refshauge went on to say that the first major efforts at psychiatric screening were, as Surgeon-Lieutenant Cawte had already said, carried out by the U.S.A. during World War II, when over 2,000,000 personnel were rejected on neuro-psychiatric grounds. After the war an investigation was carried out by their selective service organization, and the service records of over 2000 personnel, who had been rejected on neuro-psychiatric grounds but had found their way into the Armed Forces by various circumstances, were studied. It was found that approximately 27% had given satis-

factory service (many having been decorated for valour and meritorious service), approximately 50% had given average to below average service, and approximately 23% had been discharged on neuro-psychiatric disciplinary grounds, their service having been most unsatisfactory. During the second World War, the psychiatrists had been causing some concern in the United Kingdom, and there they were regarded with hostility by the then Prime Minister, Mr. Winston Churchill, as several of his minutes showed. General Refshauge then quoted from page 835 of Volume IV of Sir Winston Churchill's publication "Second World War":

> Prime Minister to Secretary of State for War. 13 Mar 43—
>
> "Lord Horder spoke to me the other day about the work of the psychiatrists. I asked how many there are, and how much money is involved in their maintenance in the Army. Lord Horder informed me that when the present AG held N Comd there were many more cases of discharge for psychical neurosis than in any other part of the Army. He also stated that the AG desired that each recruit should be asked 'With what degree of willingness he had entered the service?'. Is it possible that this is true? Considering that we have compulsory service, anything more subversive to morale could hardly be imagined."

General Refshauge went on to say that in approximately 1943, the Australian Military Forces had introduced a Psychology Unit under Colonel Ashburner to assist in selection of officers. There was some feeling of hostility towards that innovation amongst the forward medical officers and combatant officers. However, it continued its work until the end of the war.

With that background, one could ask why that screening had failed, as fail it did to render negligible, as was desired, the mental breakdown of soldiers. General Refshauge said that in his opinion it had failed for three reasons. (i) The psychiatrists, because of their civilian training, were too impressed by family history and by the minor degrees of predisposition. (ii) The boards were unable to simulate the stressful situations that occurred in war. (iii) Too little attention was paid to the effect on behaviour of leadership, discipline and training, the three factors that went to make up morale. The fact that a commanding officer who was a good "man-manager" had few mental casualties irrespective of the personality make-up of his men, whilst a poor "man-manager" usually had a large number, was probably not appreciated sufficiently. General Refshauge thought that the process of screening and selection from the medical point of view should aim at determining whether (i) the recruit was trainable, (ii) the recruit would be a grave disciplinary liability to the Army, and (iii) the recruit had a severe predisposition to psychoneurosis. The Army had tried to carry out the last-mentioned three aims by recently introducing a combined psychological and medical examination before the applicant was seen by the selection officer or board. The applicant had a psychological test and interview, and that information was supplied to the examining medical board for their determination concerning mental fitness. Educational and intellectual levels and pure behaviour disorders were also ascertained by the psychological test and interview. It was to be noted that psychiatrists examined only the "doubtful" recruits referred to them by the medical board. Although that procedure had been introduced only in 1956 for officer candidates and in 1957 for general recruits, it was thought that even at that early stage it would be quite successful in minimizing administrative and medical problems.

Referring to forward treatment, General Refshauge said that there was no doubt that the further forward an "exhaustion" casualty was treated, the more certain he was to recover fully and continue to serve usefully in action. The further back the neuro-psychiatric casualty was evacuated, then the less likely he was to return to the front line. Indeed, over the portals of the psychiatric wards of the general hospitals should be clearly marked "All hope abandon ye who enter here", for there was little hope of their returning to field units. As an illustration, he recalled that the famous Third Royal Australian Regiment, in Korea in late 1951, after particularly heavy clashes for some two weeks, had some 40 or so "exhaustion" cases. All but five of those men were treated by the regimental medical officer at a rear regimental aid post—given sedation, and adequate sleep and nourishment. All those so treated returned to duty within 36 hours, and up till five months later, when he had visited the area, none had broken down. Of the five evacuated, three had been treated in the division field dressing station and returned to duty. Two had been evacuated to Japan and did not return.

General Refshauge said in conclusion that there was no doubt that modern warfare would demand a comprehensive psychiatric service. However, he believed that, adequately trained in the general principles of psychological medicine, good regimental medical officers made the best field psychiatrists.

E. A. DALEY (Victoria) concurred in the value of the trained medical observer, who could pick up in the forward line the early operational fatigue and early anxiety states and arrange appropriate prompt handling, which minimized further deterioration. He indicated that as the Royal Australian Air Force was a more individualistic Service and as aircrew teams were of much smaller numbers, the Air Force was unfortunate in not always having in action the strong comradeship backing to morale of the large ship's company or the battalion. He asked what were Surgeon-Lieutenant Cawte's views on the relationship between the psychiatrist and the psychologist in the handling and rehabilitation of service patients.

Aviation Medicine at Home and Abroad.

J. MC. MORRISON (Victoria) read a paper entitled "Aviation Medicine at Home and Abroad". He said that the extraordinary developments in the engineering aspects of flight, including the control of nuclear energy and the launching of man-made satellites, had highlighted the medical problems involved in the manning of flight vehicles of the present and the future. One of the basic problems was the selection of suitable aircrew personnel. Standards were rising, and after elimination of the physically and psychologically unfit, the wastage rate in training was high. The problem might be alleviated by increasing health and educational levels in the population, a general decrease in flying hazards, the design of more easily operated aircraft and a lowering of the standard of acceptance for training. Flying safety and improved aircraft design were the immediate concern of aeromedical personnel. The question of the selection of passengers had arisen with military jet aircraft. Referring to training, Squadron Leader Morrison described the instruction previously received by aircrew from medical personnel, relating to the physiological problems associated with flight, escape from aircraft and survival. He said that developments in recent years had made necessary an increase in the training. Aircrew now had to know something of pressure breathing, the use of pressure suits, the use of protective clothing including "G" suits, rapid decompression and the use of ejection seats. The greater part of that physiological training was conducted by military organizations, but civilian airlines and aircraft manufacturers were now finding it necessary to institute special centres for the purpose. Nursing staff and ground crews had to receive courses of instruction in their special problems. The exploration and development in the Arctic and Antarctic demanded special courses on the medical problems of flight and survival in those areas. The physical and psychological standards required of the flier on selection had to be maintained throughout his flying career; that required constant medical surveillance. More special investigations were now being introduced during the routine examination of aircrew.

Squadron Leader Morrison then demonstrated some of the problems of the aeromedical scientist by taking a very high performance aircraft and a rocket as examples.

E. A. DALEY (Victoria) said that Squadron Leader Morrison had covered widely the various branches of aviation medicine, and had applied them to the conditions of jet aircraft and the rocket-propelled vehicle. He suggested that the lecture stressed the need for the closest cooperation and planning between the aeronautical engineer, the aircrew member and the aviation medical officer, to increase safety, efficiency and comfort of all aircrew, and to minimize fatigue in aircrew and others. Cockpit layout and suitable environment at all altitudes and conditions of flying necessitated detailed combined studies by all concerned, including anthropometry. Air Vice-Marshal Daly thought that the increased *tempo* associated with modern flight might mean that the future pilot must be of good intelligence and quick reaction time and have good technical training. That might affect the status of pilots in the services, in view of the high cost of modern aircraft under their control.

Irradiation and Tissue Repair.

H. A. S. VAN DEN BRENK (Victoria) read a paper entitled "Irradiation and Tissue Repair", in which he reviewed experimental and clinical studies dealing with the effects of ionizing radiations on the clinical course of repair processes in tissues. He discussed radiobiological indicators of repair phenomena applicable to quantitative determinations with particular reference to the information which had resulted from his own studies on wound contraction in experimental animals, and on the growth of the repair blastema (granulation tissue) by the use of the Sandison Clark ear chamber technique in rabbits. He said that the subject of irradiation and repair was of extreme importance in modern life in the therapeutic and industrial medical and the military fields. He stressed the importance of tactical aspects of cellular complexes in healing, as distinct from cell multiplication and synthesis, and the extent to which restoration depended on those phenomena in wound healing and repair. He said that without such knowledge, the effect of irradiation on that biological event must be misunderstood. Dr. Van den Brenk referred to the idea of cellular competence, as distinct from cellular performance, after irradiation, and discussed the importance of fibrillogenesis and super-regeneration in irradiated tissues. He said that the essential practical considerations arising from those studies were three in number. (i) Wound healing was a phenomenon intrinsically extremely resistant to local irradiation; that applied to all actively migrating cellular components (vascular, lymphatic, fibroblastic and epithelial). (ii) Wound healing was further largely unaffected by demands made on the organism by whole body irradiation. (iii) Many of the deleterious effects on healing resulting from local irradiation were indirect, and due to physio-chemical alterations in exudates, ground substance and endoskeleton; to those might be added those changes in tissue form resulting from cellular depopulation as delayed effects. It was clear that, given the choice, wounding should closely follow or precede irradiation, in which case the formal surgical principles applied to non-irradiated tissue were employed. On the other hand, healing in atrophic tissue, which resulted as a late effect of irradiation, was poor despite intrinsic cellular competence. Such tissues were best fully excised if possible, or left undisturbed *in situ*, with minimal interference due to incisions, infection, stretching and chronic irritation. The use of "stimulants" to aid healing in such tissues was illogical, in that a complete change in tissue form, with a reversal of fibrillogenesis and hyaline change, was necessary to elicit the cryptic potentialities of cells to migrate and repair the discontinuity resulting from major injuries or an upset in the equilibrium of normal "wear and tear".

The Nutritional Requirements of Flying Personnel.

W. LOCKHART RAIT (Victoria) read a paper entitled "The Nutritional Requirements of Flying Personnel". He said that food was required for three main purposes: (i) to supply the necessary energy for the production of internal and external work and the maintenance of body temperature; (ii) to supply the necessary material to make good the wear and tear of the tissues, and in the young to provide for growth; (iii) to provide substances which controlled the various processes of the body. The fundamental requirements and principles on the basis of which a daily nutritional programme might be planned for aircrew were then discussed. Wing Commander Rait said that the first was that the organic food substances (protein, fat and carbohydrate), vitamins, water and mineral salts must form part of the daily flying ration in sufficient quantities to replace the substances used up by the body. The second was that the food must fully replace the loss of energy and enable the body to increase its tolerance to the influence of diminished atmospheric pressure, hypoxia, low temperature and a series of influences peculiar to flying. The airman should include in his daily diet in all circumstances a large serving of protein food, two or more glasses of milk, a variety of vegetables (especially green and yellow), fruits (especially citrus), and generous amounts of enriched and whole grain bread and cereals. The third principle was that for aircrew engaged in high altitude flying, the diet must not contain substances producing a great amount of gas in the intestine. The fourth was that liquids must be supplied with the diet in sufficient quantities to maintain a normal water balance. The fifth principle was that the meals of the aircrew must be arranged to conform with their working timetable. The sixth was that the diet of aircrew engaged in high altitude flying must not produce excess body fat. The seventh was that the diet of aircrew engaged in high altitude flying must contain adequate amounts of the lipotrophic factors. Wing Commander Rait discussed each principle in some detail. He said in conclusion that flying personnel might be exposed to certain stresses such as high speed, rapid climb, steep descent, centrifugal force, vibration, noise, extremes of temperature, confinement to a restricted position, exhaust gases and vapours, long periods of flight, and high ceiling with its environmental changes such as glare, hypoxia and low ambient pressure. Those and other abnormal environmental conditions might increase nutritional requirements. Diet was only one of the factors which determined nutritional status. The effect of the flight environment on the physiological utilization of food was of the utmost importance in establishing a scientific flight feeding programme.

E. A. DALEY (Victoria), in reply to Admiral Lockwood's inquiry concerning what was a suitable diet, referred to the fundamental food requirements worked out from first principles by Wing Commander Rait, to provide non-gas-forming nutritive foods, high protein content, and their conversion, by the Red Cross dietitians, into suitable meals. He referred to the stern view taken by the United States Air Force on overweight with regard to loss of flying status and pay, and also to the fact that in their Service messes, diets were laid out with cards showing the caloric values of each. Those cards were an aid to the personnel concerned, and might perhaps be considered for Australian services.

Section of Neurology and Psychiatry.

President: E. G. Robertson, M.D., B.S., F.R.C.P., F.R.A.C.P., Victoria.

Vice-Presidents: S. B. Forgan, M.B., B.S., D.P.M., South Australia; Christine H. MacMahon, M.B., B.S., D.P.M., New South Wales; Isabel Williams, B.A., M.B., B.S., M.R.A.C.P., Tasmania.

Honorary Secretary: J. R. V. Foxton, M.B., B.S., Tasmania.

The Investigation of the Neurological Patient.

E. GRAEME ROBERTSON (Victoria) took as the subject of his presidential address "The Investigation of the Neurological Patient". He said that in the present impetuous days, when time was no longer allowed to be an aid in diagnosis, it became important to decide which patients were likely to gain from investigation, and which tests were likely to be most informative in any problem. Dr. Graeme Robertson presented an analysis of all the investigations carried out in the Department of Neurology and Neurosurgery at the Royal Melbourne Hospital. He said that the analysis had been made in the hope of learning how the patient's well-being might be best served, while his financial and psychological resources were depleted as little as possible.

The Use of Endocrines in Psychiatry.

W. H. TRETHOWAN (New South Wales) reviewed the present position regarding the use of endocrines in psychiatry. He said that apart from those endocrine disorders which were accompanied by mental symptoms, and which responded to appropriate hormonal therapy, there were, with the single exception of Gjessing's syndrome, as yet no specific endocrine treatments for primary psychiatric illnesses. Nonetheless endocrine therapy might be of value as an adjuvant in certain of those conditions. Professor Trethowan mentioned the treatment of menopausal psychosis, the male climacteric syndrome, postpuerperal psychoses and the premenstrual tension syndrome. He discussed the use of endocrines in the treatment of sexual abnormalities and in acute and chronic alcoholism. He agreed with the statement of Sargent and Slater that glandular therapy in psychiatry was rather the hope of the future than the practical measure of the present.

B. H. PETERSON (New South Wales), in opening the discussion, said that he had been interested in endocrines for some time because of the close links of the endocrine system with the central and autonomic nervous systems and with the physiology of emotion, the psychological changes accompanying the physiological epochs of adolescence and the climacteric, the psychiatric symptoms associated with many endocrine disorders, the effects of stress on the hypothalamus-pituitary-adrenal mechanism and the search for possible biochemical and hormonal links in the ætiological chain in schizophrenia. Accurate answers to the many unanswered questions in the field would depend probably on the availability of more exact methods of hormonal assays. With regard to menopausal syndromes, he wondered whether cases like those described in Ingvarson's series and quoted by Professor Trethowan in his paper, characterized by vasomotor and emotional instability, menstrual disturbances, a prevailing mood of depression, marked anxiety or agitation and preoccupation with somatic symptoms, might be largely a matter of degree. In other words, they were exaggerations of the normal psychic patterns of the menopause. They might not reach frankly psychotic proportions, but seemed to be more than just a neurotic reaction to the physical symptoms of the menopause. If that type of case was encountered, Dr. Peterson felt that sedation, psychotherapy and œstrogens should be tried first, provided that the suicidal risk was judged to be minimal. If that failed after, say, a month, electroconvulsive therapy could be considered, but he found that a proportion failed to respond to electroconvulsive therapy, or, if they did respond, the relapse rate was high, which was rather different from what one found with true involutional melancholias. One authority suggested that electroconvulsive therapy might be contraindicated in the presence of hot flushes, as it might cause further follicle-stimulating hormone production. Sometimes, however, Dr. Peterson said that he found it beneficial to give both electroconvulsive therapy and œstrogens in severe menopausal depressions accompanied by hot flushes. Dr. Peterson said that Professor Trethowan had stressed the premenstrual state. It would be nice to know the cause of the hormonal imbalance and fluid retention said to be responsible for the symptoms. The very multiplicity of effective treatments suggested to Dr. Peterson that they were treating secondary effects of some underlying disorder, possibly of the hypothalamic pituitary system. He suggested in addition that there was a type of premenstrual tension state which occurred in women nearing the menopause which responded to œstrogens given for ten days after each menstrual period.

Dr. Peterson went on to say that he was most interested to hear Professor Trethowan say that a combination of chlorpromazine and electroconvulsive therapy might be as good as or better than deep coma insulin for schizophrenia. If that was true, and Dr. Peterson agreed that it might be, it would mean a major advance in the therapy of early schizophrenia, but he thought that it would probably need at least five more years of careful research before they were sure about it. In answer to his own question of what they should do when schizophrenia was definitely diagnosed, within two years of onset, he suggested that chlorpromazine and possibly electroconvulsive therapy should be tried first; but if there was no adequate improvement in three months, deep coma insulin, if available, should be seriously considered.

Dr. Peterson said that he would like to ask Professor Trethowan about a small group of patients whom he had encountered in the past few years. They comprised several women in the thirties with severe phobia states which were relieved by sedation and fairly intense psychotherapy. All the patients had had toxic goitres removed some years earlier. Dr. Peterson said that they all knew of the association of anxiety states or even psychotic agitation or excitement with concurrent hyperthyroidism, but he had not previously seen or heard of the syndrome just mentioned, which occurred in euthyroid women. Dr. Peterson concluded by briefly describing the case of a homosexual subject who was dramatically helped by the administration of stilbœstrol.

I. LISTWAN (New South Wales) said that he greatly appreciated Professor Trethowan's paper. They were used to his pessimistic views about treatment, and Dr. Listwan was very glad that he had decided to talk on treatment at the Congress.

Dr. Listwan said that he had noted carefully Professor Trethowan's suggestions with regard to the use of stilbœstrol for suppressing libido in homosexuals. He felt that the dose should be higher, between five and twenty milligrammes a day. The indication of the right dose would be the increase in the size of breasts. He further wished to draw attention to a particular type of late post-puerperal depression occurring during the period of lactation. It might, but need not, occur during the sup-

pression of lactation, and in that case it could be compared with premenstrual tension. It occurred mostly in young women with a bad family background and an obsessive personality, and usually with the second child.

O. SCHMALZBACH (New South Wales) stressed the need for a sincere desire to be helped on the part of the homosexual. Those who came for treatment of their own volition were usually easier to help than those who were sent by the courts.

Professor Trethowan, in his reply, said that he had yet to be convinced that there was a specific type of menopausal depression. However, it had been found in recent years that the relapse rate in involutional melancholia was high in menopausal women after electroconvulsive therapy. He doubted the wisdom of trying conservative therapy first in menopausal depressions, because of the risk of suicide. He pointed out that there were now less cases of schizophrenia being submitted for deep coma insulin therapy, presumably because they had responded to treatment with chlorpromazine and electroconvulsive therapy.

Mental Disorders in Migrants.

I. A. LISTWAN (New South Wales) read a paper entitled "Mental Disorders in Migrants: A Further Study". He said that he had discussed emotional disorders in individual migrants in a previous paper on "Paranoid States: Social and Cultural Aspects". The present study was concerned with the relation between migrant groups and host groups. He explained emotional disorders arising out of head-to-head collision of those groups as due to a conflict between prejudice on the host group side and collective neurosis of the anxiety type on the migrants' group side. He said that the clinical pictures of that collective neurosis varied in accordance with the defence mechanism used. They were described as regression, paranoid reactions, escapism, depressive states, hypomanic states, inferiority complexes and hysterical reactions. The attitudes of the host population were due to prejudice and certain counter-reactions generating power to treat the collective neurosis of migrants on a social level. Education of migrants and hosts, as well as their children, was a necessity. Dr. Listwan thought that Press reports should be controlled and detention camps avoided. He said that the naturalization ceremony was a symbol of destroyed prejudice and concluded assimilation.

I. WILLIAMS (Tasmania), in opening the discussion, said that it was difficult for those who had spent their lives in one country to realize the tremendous emotional difficulties presented by change of country. He had had what he regarded ultimately as the good fortune to move in early maturity from the country of his upbringing and education to that which he had always regarded as his home. Although that move had always been eagerly anticipated, the difficulties of adjustment were tremendous. Minor changes of routine, criticism of dress, etc., all assumed great importance. In America, the later development of mass migration was visible; although the older generations preserved their own culture, their children blended into the community. Dr. Williams said that one matter that always worried him was whether one should regard as neurotic behaviour that which was normal in the patient's own culture—for example, undue emotion. Another point on which he felt that the community as a whole needed to adjust its attitude was the assumption that New Australians should be happy to settle with Australians because Australia offered them an improvement on their previous conditions. The Australians forgot that often, even though they felt that, they still had no real wish to leave their own country, and felt a deep resentment and unhappiness over the circumstances that forced the move.

D. MOYNAGH (Tasmania) stressed the importance of interracial hostility in different racial groups of migrants. Moreover, the various racial groups reacted to migration in different ways according to their national characteristics. He mentioned also the language problem.

O. SCHMALZBACH (New South Wales) suggested that a study should be made of the migration problems of the United States to throw light on those in Australia. He quoted the Negro problem in pointing out that some problems might exist for many years.

B. H. PETERSON (New South Wales) asked Dr. Listwan if he would comment on any differences between the group of migrants who were sponsored by their own or other families or who were joined to a host group with similar interests, such as a church of their own denomination, and the group who emigrated of their own accord "into the unknown", as it were.

Dr. Listwan, in reply to Dr. Williams, said that he felt that there was a weakness in his paper arising out of lack of distinction between refugees and migrants. Refugees were persons who were forced to migrate and carry a resentment about it. Migrants were persons who migrated voluntarily. The emotional problems arising in the two groups differed. In reply to Dr. Moynagh, who had asked whether there were tensions between migrant groups, e.g., between Italians and Greeks, in addition or in distinction to tensions between migrant groups and host groups, Dr. Liswan agreed that those tensions did exist and that they had to be tackled in some way. He suggested that it would help to ease those tensions by taking all the different national groups out of the camps to avoid creating ghettos in cities, and particularly not to follow the American example of creating villages and townships with national majorities and national councils. In reply to Dr. Schmalzbach's comment that, when one spoke about the collective neurosis, that neurosis existed not only in migrants, but in human beings generally, Dr. Listwan said that they were all aware of it, but he had limited the topic of discussion in his paper to collective neurosis in migrants and their hosts only. In reply to Dr. Patterson, who had asked whether bringing out all the family members was of importance, Dr. Listwan said that it was of great importance that parents or close relatives should be brought out, even if they temporarily presented a problem for the State. They contributed to the consolidation of families, and that in turn contributed to elimination of neurotic attitudes.

The Iatrogenic State.

O. R. SCHMALZBACH (New South Wales) read a paper which he said was primarily concerned with the condition which could be traced to faulty handling of the patients by a doctor—the iatrogenic state, meaning originating from a doctor. He discussed the syndrome induced by a generally wrong psychological approach to the patient not only by general practitioners, but as well unfortunately by some specialists (not psychiatrists), who did not consider sufficiently the importance of emotional factors in causation of symptoms.

In the first part of the paper, after a short review of the scarce literature on the subject, the condition was discussed under three subheadings: (i) the iatrogenic state as caused by general practitioners and other specialists except psychiatrists; (ii) the state as caused by psychiatrists (psychiatrogenic state); (iii) the condition as seen in medico-legal cases, especially in cases of litigation (medico-legalogenic). Those separate groups were indicated through their specific colouring, and they all had some similarities with anxiety states; nevertheless, they should be differentiated from them.

In the second part of the paper some of the implications of emotions in causation of physical symptoms were discussed, and examples were quoted of the author's own experiments and those of others, especially into the problem of psychological and physical sequelæ of fear. The possibilities of prevention were described, and a reference was made to the biological prophylaxis quoted from the author's paper "Bioprophylaxis", published in 1947.

In conclusion, a plea was expressed for more cooperation and more understanding of the psychotherapeutic value even in the manner of giving to a patient a prescription for a placebo. A plea was made to general practitioners to keep in mind their psychological relationships with the patients, and a further request to psychiatrists at large to endeavour to consider their colleagues as being as good

and capable doctors as themselves. Finally, in cases of litigation, whether under common or compensation law, a request was made to some members of the legal profession to dispose of their opinion that "there was not such a bad case where the jury could not be convinced of the need for damages" and to discontinue to turn even a negligible physical injury into a major example of psychic trauma.

D. MOYNAGH (Tasmania), in opening the discussion, stressed the fact that if only the general practitioner would make time to listen to the patient's story, a better doctor-patient relationship and less misunderstanding on the part of both patient and doctor were likely to arise. He made a distinction between iatrogenic disease and the iatrogenic state. The former would often be put right when the patient went to another doctor. The latter continued as an undue dependence, and the patient went from doctor to doctor perhaps for years. Dr. Moynagh defended Patterson Ross, one of his old teachers, and said that the latter was concerned that patients should be fully investigated so that organic disease was not missed. He did not advocate over-investigation, which was a potent cause of iatrogenic neurotic illness.

G. DAVIES (Victoria) made a plea for a more understanding attitude to the aged, who were not necessarily old and infirm because they were over 65 years of age. They were easily made to feel rejected and helpless and useless if their doctor was not very interested in them, or if he automatically gave a bad prognosis just because of their age. They should be told on retiring at 65 that they still had the best ten years of their lives ahead of them.

W. H. TRETHOWAN (New South Wales) questioned the existence of an iatrogenic state as such. He felt that if in each instance the underlying unconscious dynamic factors were investigated, it would be found that the patient's reaction to the doctor's mistakes could be interpreted on the basis of a preexisting neurosis. An understanding of that was essential to wise management.

Dr. Schmalzbach, in reply to Dr. Moynagh, stressed the fact that useless investigations were often employed in neurotic or psychotic patients. He agreed with Dr. Davies's remarks about old people and also with Professor Trethowan's remarks about underlying dynamics, but pointed out that in his paper he was referring to medico-legal cases; lawyers had no patience with the dynamics of the case, as both they and their clients wished to make the most of the illness to obtain maximum compensation.

Hypnosis: An Evaluation of its Place in Medicine.

AINSLIE MEARES (Victoria) read a paper entitled "Hypnosis: An Evaluation of its Place in Medicine". He said that the recent interest in hypnosis was not a mere revival of old methods, but had brought new techniques, especially the passivity of the therapist and treatment by insight. Nevertheless, there was some tendency in the medical profession to regard work in hypnosis as suspect. Perverse motivation was one of the dangers, and was an important factor in determining the role of hypnosis in medicine. Patients often sought hypnosis to fulfil unconscious masochistic yearnings, or on account of pre-psychotic ideas of influence or latent homosexual tendencies. Likewise, the physician might be driven to practise hypnosis by unconscious perverse motivation. A post-hypnotic suggestion which remained unfulfilled, on account of either environmental or intrapsychic factors, might produce severe anxiety. Traumatic insight occurred when hypnosis allowed the sudden surge into consciousness of repressed material, such as ideas of homosexuality, or forbidden love or hate. Extreme anxiety might result. That might occur when an individual had been hypnotized for non-medical purposes. As a general anæsthetic, hypnosis carried psychological hazards, and had little to recommend it compared with pharmacological anæsthesia. Dr. Meares said that dentists should develop relaxing techniques, rather than aim for full hypnosis. The use of post-hypnotic suggestion in obstetrics was potentially dangerous, unless the hypnotist attended the delivery. To be hypnotized by an obstetrician who was skilled in the psychodynamics of hypnosis seemed to be an ideal way of having a baby. There should be greater use of hypnosis in psychiatry, and greater use of relaxed and hypnoidal states in general practice.

H. J. C. ENGISCH (Tasmania), in opening the discussion, said that he was in agreement with nearly all that Dr. Meares had said, and thought that no one could have said it better. If he disagreed with one or two points, it was because his approach to hypnosis had been from a different angle—that of a physician coming to use something with an apparent real physical effect on the body. Dr. Meares's approach had been analytic, but the two were not exclusive, any more than diagnostic radiology and radiotherapy were. However, they were two very different ways of using the same medium, and to establish a model just for the present discussion Dr. Engisch said that he would liken hypnosis to X radiation. The authoritative approach was to the passive as deep therapy was to diagnostic or superficial X-ray therapy, and their techniques were different. Any one operator was not necessarily expert at the other. A case history, using the authoritative method, would illustrate that. Nearly three years previously, a married woman of 30 years, with three children, had presented with a morbid fear of death, present for two years, necessitating, at one stage, admission to Millbrook Rise. She had had ulcerative colitis for seven years, and that was at the time active. Sigmoidoscopy revealed a lesion about one inch from the anus, and a surgeon was called to exclude carcinoma. He was unable to see for blood, and authoritative hypnosis was used to turn the bleeding off like a tap. A clear view of the ulcer was obtained, and a biopsy taken. One more authoritative hypnotic session with abreaction and ventilation of repressed material, brought at once into consciousness, relieved the patient immediately of her phobia and her ulcerative colitis. There had been no recurrence of either. In Dr. Engisch's opinion the passive approach in that instance would not have succeeded and could possibly have made her worse. He thought that the authoritative approach gave the subject safety, provided it was intense enough.

Dr. Engisch went on to say that the dangers of hypnosis mentioned by Dr. Meares applied equally to straight analysis and were attributable to the passive method of use of hypnosis, not to hypnosis itself. He agreed that automatic writing and hypnography were a useful tool in analysis, and he had used it himself for many years, but, even so, he was quite sure that it was unphysiological and, without extreme care, quite dangerous.

Dr. Engisch said that almost all practitioners in Tasmania had, in the last five years, accepted hypnosis as a valid form of treatment, but even recently one of his country colleagues had asked his assurance that he would not make any improper suggestions. That brought him to the point that the scientist, medical or otherwise, would not be fully satisfied until the anatomy, physiology and chemistry of hypnosis were known. Dr. Meares had quite rightly kept theory out of his paper, but Dr. Engisch thought it was essential to say that it was possible to formulate a simple, satisfying theory on the neurophysiology of hypnosis, thanks to the recent work of the neuro-anatomists, physiologists and communicating engineers. However, that could not be discussed on the present occasion. He would not be surprised, however, if soon it could be said that in a particular case X gamma of lysergic acid diethylamide would antagonize Y units of hypnosis, or that in a case of rheumatoid arthritis, say, so much hypnosis would produce an effect equal to so many milligrammes of hydrocortisone. Even if that were so, however, was the hypnotist explained really any more than, say, the artist? He was not, but both had their exact place in the cohesion and survival of the group, and Dr. Engisch thought, as did Dr. Meares, that at least part of the group instinct was not to be found within the realm of physical science—in fact science might even interfere with it; parapsychology might require a paraphysics.

Dr. Engisch said that he agreed wholeheartedly with Dr. Meares about the use of hypnosis in dentistry, but he

was of an open mind concerning obstetrics. He thought that hypnosis was a reasonably skilled operation—even the authoritative variety—and he was inclined to regard greater use of it by general practitioners in the same way as he would, say, cholecystectomy or any other reasonably skilled operation.

In short, Dr. Engisch said that he had disagreed with Dr. Meares on two basic points, but they were really one. The authoritative approach, he thought, was the physiological one. The dangers belonged to the passive approach, mainly because it was unphysiological; and again, with that method, perverse, unconscious motivation on either side was likely to be a trouble, rather than in the authoritative one, in which the interplay of personality was at a minimum. He felt that the deep hypnotic trance was in itself more therapeutic than suggestion, and he could not agree with some of Dr. Meares's recent articles which made hypnosis a primitive form of suggestion. Primitive it certainly was, and suggestion might play a part, but the phenomena could not be explained by that alone. They could be understood, however, with the concept of group cohesion; in that system the hypnotherapist was one of the instinctive leaders, just as the one same sheep led the flock over the fence every time. Until that was accepted, hypnosis as a form of therapy would continue to be suspect.

I. A. LISTWAN (New South Wales) said that he was not prepared to discuss hypnosis so far as its theory and dynamics were concerned. He had been privileged to hear Dr. Meares's previous papers on the subject and felt that nothing else could be added. However, he would like to comment on the unpopularity of hypnotic treatment with orthodox psychiatrists. They would, he felt, not accept hypnosis fully as a method of treatment as long as (i) hypnosis was practised on the stage, (ii) doctors claimed to specialize in hypnosis, (iii) there were medical journals and associations dealing specially with hypnosis, (iv) there was no teaching on hypnosis on the graduate and post-graduate levels, and (v) there was no delimitation between para-psychiatric (telepathy, etc.) and psychiatric sciences.

DENIS CLARK (Victoria) asked about the use of hypnosis in dermatology.

Dr. Meares, in reply, said that the question of authoritarian *versus* passive hypnosis was a ticklish one, but some years previously Ferenczi of Hungary had written about transference and hypnosis, stating that in authoritarian hypnosis the patient identified with the hypnotist as a father figure, and in passive hypnosis as a mother figure, permissive and loving. Perhaps both types had their indications. Dr. Meares agreed with Dr. Listwan's remarks, especially about the need for adequate post-graduate teaching in hypnosis. He stated that there was at least one very good United States journal on hypnosis. In reply to Dr. Denis Clark he said that hypnosis could undoubtedly be a big help in dermatology.

Section of Obstetrics and Gynaecology.

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Honorary Secretary: W. W. Wilson, M.B., B.S., F.R.C.S.E., F.R.C.O.G., Tasmania.

Pelvic Carcinoma.

R. F. MATTERS (South Australia) took as the subject of his president's address "A Survey of Pelvic Carcinoma". He divided pelvic carcinoma into three groups: (i) cancer of the vulva and vagina; (ii) ovarian cancer; (iii) cancer of the uterus. With regard to cancer of the vulva, he stressed the need for and possibility of very early diagnosis, if patients would seek advice early, and if general practitioners would refer patients with doubtful lesions to specialists. Dr. Matters drew attention to the connexion between carcinoma of the vulva on the one hand, and leucoplakia, Bowen's disease and *kraurosis vulvæ* on the other. He said that the investigation must include a search for premalignant lesions and lesions *in situ*. If the biopsy results were negative, but the lesion persisted, the entire vulva should be excised and submitted for pathological examination. Radium treatment to the lesion, with X-ray irradiation of the glands, had given a five-year cure rate of 30%. Radical vulvectomy with extirpation of the glands, by Way's method, gave a cure rate of 60% with an operative mortality rate of 12%. That massive one-step operation had not an appreciably greater cure rate than the simpler excision of the vulva and removal of the inguinal glands. Carcinoma of the vagina was very rare, and usually arose after the menopause. The treatment was by Wertheim's panhysterectomy with removal of the vagina. Turning to ovarian carcinoma, Dr. Matters said that it varied from primary lesions in the ovary to ovarian tumours secondary to primary lesions, usually in the stomach. Ovarian carcinoma grew quietly and insidiously, and might develop enormously before metastasizing. Frequently such growths were actually disseminated by implantation in the peritoneum, so that ascites was common. When ovarian tumours had become obvious, they might have become inoperable. Any symptom or sign of such tumours should be treated by laparotomy, otherwise they might escape detection. The usual treatment was by panhysterectomy, although some success had been achieved with radium and X rays. The results of treatment with gold isotopes appeared at present to be palliative only. Dr. Matters then said that carcinoma of the uterine body had a somewhat insidious development, with little of diagnostic value in the early stages. The examination of vaginal smears might help. A curettage was essential for certain diagnosis. The best treatment was panhysterectomy, with pre-operative intrauterine implantation of radium, or application of radium to the vault after operation. Thorough investigation of the records showed that the former method gave the best results—a five-year cure rate of over 80%. In the Adelaide series, at the time of operation the cervix was sutured from the vaginal aspect so that the uterus was made water-tight before being pulled through the peritoneal cavity; the five-year cure rate was 84%. Dr. Matters said that carcinoma of the cervix was the commonest form of cancer in women. The mortality rate was high, because more than 50% of the patients did not seek advice until they had passed stage II. It was much more common in *multiparæ* than in *nulliparæ*, an important diagnostic point. Dr. Matters stressed the importance of early diagnosis, and discussed in detail the investigations that should be undertaken. He said that the treatment, whether by radium or surgery, depended mainly on the stage of the growth and the condition of the patient. In

stage 0, treatment was by total hysterectomy and removal of a small sleeve of the upper part of the vagina; one or both ovaries might be conserved. In stages I and II, if the patient's general condition was good, he preferred the intracavitary implantation of radium, followed a few weeks later by a Wertheim procedure. Stages III and IV were more suitable for palliative and salvage therapy by radium; the results might be surprisingly good. Patients with involvement of the bladder or rectum, or both, might be treated by exenteration. The mortality and morbidity rates were high, but in experienced hands with adequate equipment the results had justified the extreme measures adopted. Dr. Matters said that the linear accelerator and cobalt bomb were salvaging a number of cases. He finally stressed the fact that, if people were sufficiently educated, there would be no need for such mutilating operations as exenteration. General practitioners should be persuaded to take a careful history and to visualize the cervix with a speculum.

GWEN GERRARD (New South Wales), in opening the discussion, said that Dr. Matters had covered a marathon subject at the pace of a fast sprint. She agreed entirely with much that he had said, and indeed wished to emphasize several points; she also wished to challenge one of his statements and to clarify one opinion attributed to Kottmeier. Dr. Gerrard then said that on the question of carcinoma of the vulva, Dr. Matters had referred to the delay in commencing effective treatment. She said that carcinoma of the vulva was by no means a great rarity. In Sydney there seemed to be about 15 cases *per annum*. If Dr. Matters's paper inspired practitioners to be on the look-out for the condition, and to refer all patients with suspicious lesions to a specialist when they were first examined, then the Congress would have been worth while. The Philadelphia Committee for the study of pelvic cancer in 1956 had found a 66% patient delay averaging 2·35 years, and—even worse—a doctor-institution delay of 53% averaging 1·2 years. In Sydney it was held that there was much confused thinking in relation to the terms "leucoplakia" and "kraurosis". There the sequence gaining favour was to consider the innocent condition previously called kraurosis as a purely hormonal deficiency state of the sexual skin, commonly seen in young sterile females, and to reserve the term "kraurosis" for the atrophic end-form of *lichen sclerosus hypertrophicus vel atrophicus*—one aspect of *lichen planus*. The hypertrophic end-form of that condition was regarded as the gynæcological entity known as "leucoplakia", a truly premalignant disease. Two points arose out of that: (i) The atrophic form (kraurosis) was often associated with discrete islets of the hypertrophic form (leucoplakia), and those were the areas in the kraurosis in which malignant change occurred. (ii) The hypertrophic form of *lichen sclerosus* almost never developed around the anus, and consequently carcinoma was rarely seen in that area. *Lichen sclerosus* at that site seldom required excision. With regard to the treatment of carcinoma of the vulva, Dr. Gerrard went on to say that at the Rachel Forster Hospital in Sydney it was held that radium and deep X-ray therapy had no place. The best five-year cure rate she could find for radium therapy was 26%; and even McKelvey of Minnesota, who in the past had used that method, stated that the burning and scarring from radium and deep X-ray therapy were often as severe as the original disease. She believed that Stanley Way now first dissected out the deep femoral gland (the gland of Cloquet), and had it examined for cancer cells by smear technique. He then completed the excision of the superficial glands and of the vulva. If the findings in the gland of Cloquet on either side were positive, he continued his dissection by cutting the inguinal ligament and following up the obturator and external iliac glands. If there was no involvement, he did not proceed to the deeper glands. However, he had found the latter to be involved in 15% of all his cases, both operative and autopsy. Thus, if only the superficial glands were removed, one might presume that at least 15% of the patients were inadequately treated. At the Rachel Forster Hospital, it was intended in the future to follow Stanley Way's present practice, except that they proposed to have frozen sections examined rather than a gland smear. Dr. Gerrard said that at the King George V Memorial Hospital, Sydney, she believed that Malcolm Stening had just completed a series of 50 cases with removal of deep glands with one post-operative death and a five-year cure rate of 64%. She could not say in what percentage of those cases deep glands were involved.

Turning to ovarian carcinoma, Dr. Gerrard said that she could only say that that disease was so insidious, and the results of treatment were so poor, that in her opinion any chance aberration detected in the ovaries on vaginal examination warranted a laparotomy to exclude the condition.

On the question of carcinoma of the body of the uterus, Dr. Gerrard said that Dr. Matters had not emphasized the frequently close association between carcinoma and pyometra. In discussing carcinoma of the body of the uterus at St. Louis in 1957, Kottmeier had said that he regarded pre-operative irradiation as valuable in rendering any "spill" in the course of the operation a "spill" of dead cells only. He had also said that he regarded hysterectomy as the treatment of choice whenever it could be performed; intracavitary implantation of radium he regarded as a whole treatment only in inoperable carcinoma. However, he was enthusiastic about post-operative radium irradiation of the whole length of the vagina, with Heyman's capsule, and claimed to have reduced his vault recurrences from 11% to 3% by that means. Kottmeier had expressed those opinions also in his published American lectures, "Carcinoma of the Female Genitalia" (1953).

Dr. Gerrard then referred to carcinoma of the cervix. She said that at the Rachel Forster Hospital they had been impressed with the work of Glucksman at Strangeways, Cambridge; she had also been impressed by her own observations of the work of Sherman, Allen and Arneson, at St. Louis, Missouri. Consequently, during the last 12 months, they had been cooperating with St. Vincent's Hospital, Sydney, where the application of radioactive gold to the parametrium had been combined with a trial of application of radium to the cervix, and followed by a Wertheim hysterectomy when the response to radium was unfavourable, and by a full course of radium therapy when the response was favourable. Since the radioactive gold treatment rendered the Wertheim hysterectomy a more difficult procedure, that was now withheld pending the first report on the Glucksman response, and used only in conjunction with the full course of radium therapy in "good response" cases. As Dr. Matters had said, J. V. Meigs relied on the Ruth Graham radium response report, and proceeded to a Wertheim hysterectomy when that was unfavourable and to the full use of radium when the response was good. Both Meigs and Te Linde took a more lenient view of carcinoma *in situ* (stage 0) than Dr. Matters did. Both those surgeons held that there was a lag period of probably up to 10 years in the young subject between the onset of stage 0 and that of stage I. They were actually satisfied with conization of the cervix, and provided that the Papanicolaou smear findings became and remained negative, would allow such patients to embark on as many as two pregnancies before advising hysterectomy. Dr. Gerrard said that she herself favoured a simple total hysterectomy.

Discussing cervical erosion, Dr. Gerrard said that she was sure that what Dr. Matters had said on the subject was true. She and her colleagues had found four cases of carcinoma *in situ* in 400 such biopsies since they instituted routine biopsy examinations in all cases of erosion. She believed that Dr. Malcolm Coppleson had found nine such cases in the last 18 months at King George V Hospital, with the use of his routine colposcopic examination of all erosions.

Dr. Gerrard finally said that she had no doubt that Brunschwig's massive exenterations had a place, and that some of his patients who had survived for nine years seemed very happy; but, if one did embark on those procedures, she thought that the diagnosis and the extent of the disease must be absolutely assured before the operation was attempted. From her observations, Brunschwig's successes were very dependent on his resuscitation teams.

Meddlesome Midwifery.

GEORGE SIMPSON (Victoria) read a paper entitled "Meddlesome Midwifery". He said that there were many accepted rules in obstetrics, of which the easiest to remember were the prohibitions. He then discussed some of the prohibitions in the light of obstetrical experience. "Don't use forceps." Dr. Simpson urged that a more positive attitude should be adopted towards intervention, and quoted the dictum of the late Arthur Wilson: "Remember that there is no difficulty in obstetrics you cannot get out of, provided you do not get too deeply into it." He pointed out that many of the great obstetric teachers of past years had advocated a similar policy, and mentioned some of the damage that could result from non-intervention when intervention was necessary. "Don't interfere with Nature—she knows best." Dr. Simpson said that the physician must not forget his great function as Nature's aid and ally, seeing what Nature could achieve, not what she could endure. "Don't make vaginal examinations." Dr. Simpson said that vaginal examination in labour was always useful in assessment of the state and stage of progress. Proper management depended on correct assessment. "Don't rupture the membranes." Dr. Simpson said that there were occasions when artificial rupture of the membranes to induce labour was a major operation; but when the uterus was contracting, the cervix was dilating and the vertex was tightly engaged in the lower uterine segment, a bag of forewaters invited puncture by a knitting-needle or probe. "Don't induce labour." Dr. Simpson said that medicinal induction of labour carried no risk and was justified on quite slender indications which, if pregnancy was allowed to continue, might develop into something serious. Medicinal induction often failed because insufficient attention was paid to the details of administration, and because there was a tendency to accept a policy of despair in regard to the efficiency of present-day methods. Dr. Simpson discussed the ways in which failure could be prevented. "Don't pull on the cord." Dr. Simpson said that obstetricians who always removed the placenta by cord traction would never be persuadad to change their habits. They were careful to hold the uterus up with the other hand, and shuddered to think of the damage their orthodox colleagues could do to the uterine supports when using a Dublin expression to expel the placenta. "Don't use chloroform." Dr. Simpson said that there was need in the labour ward for a quick, easily available general anæsthetic agent, and many of the older obstetricians still missed chloroform. "Don't have your baby at home." Dr. Simpson said that the greater safety of the hospital labour ward now made home delivery ill advised; but the problem of nursery infection might lead to increased use of domiciliary nursing in the puerperium, after delivery in a hospital. "Don't indulge in 'meddlesome midwifery'." Dr. Simpson finally put forward a number of arguments in favour of intervention in the presence of various obstetric complications in certain circumstances.

W. K. MCINTYRE (Tasmania), in opening the discussion, said that he had made use of X rays in pelvimetry and in estimating the cephalo-pelvic relationship. Now he would have to do without them, to conform with modern advice that irradiation should be reduced to a minimum. Dr. McIntyre suggested that a consultation should be requested before X rays were used. He said that restraint should be exercised in bearing-down efforts until the head was on the perineum. It was not wise to encourage them early in the second stage of labour. Dr. McIntyre then said that he had known of two cases of uterine rupture after the second injection of "Pitocin" in medical induction of labour; the warning of uterine contractions following the first injection had been ignored. He advised great care in the use of "Pitocin".

L. TOWNSEND (Victoria) said that the value of meddlesome midwifery depended on who was doing the meddling. Not everyone should. It might be safe with experience. He was not convinced that artificial rupture of the membranes during labour was free of complications. He was not happy about cord traction and its teaching to students. Professor Townsend finally said that he disagreed with Dr. Simpson, who had said that the use of "Pitocin" was not dangerous; rupture of the uterus, tonic uterine contractions and anaphylactic reactions all occurred.

L. P. SAPSFORD (Queensland) said that he agreed with Dr. Simpson that the logical and safest way to get rid of the placenta was to pull it out. He thought that the time was ripe for the instruction of students by professorial units in the modern management of the third stage by the use of ergometrine and cord traction; the result would be a saving of blood, time and worry.

GORDON KING (Western Australia) defended the policy of conservatism in professorial units. He said that he agreed with the principle of episiotomy. Professor King finally emphasized the dangers of "Pitocin".

L. O. S. POIDEVIN (South Australia) said that both fœtal distress and accidental hæmorrhage might follow the administration of "Pitocin" in induction of labour by the repeated injection method. With regard to the intravenous drip method of administering "Pitocin", he said that he thought it impossible to supervise in general practice.

COLIN CLARK (Tasmania) asked what could be used for medical induction of labour, if quinine and "Pitocin" were to be avoided.

Dr. Matters, in reply, said that he disagreed with the idea of pulling on the cord. He had seen inversion of the uterus result from that procedure.

Dr. Simpson, in reply, said that "Pitocin" had to be used with care and common sense, but it was not dangerous if all precautions were taken, and medical induction of labour was valuable with attention to detail. A sister must be in attendance, and a little psychotherapy must always be added. After the oil and enema had been given and the patient had had a hot bath, five grains of quinine sulphate were given in three doses at intervals of one hour. Then the first dose of "Pitocin", two minims, was given, after which the membranes were ruptured. Subsequent injections, if necessary, might be increased to four minims. "Syntocinon" was the preparation used. Dr. Simpson said that it was advisable not to abandon the course after the first injection if the resulting contractions were only mild.

Infectious Hepatitis in Pregnancy.

F. M. C. FORSTER (Victoria), in a paper on "Infectious Hepatitis in Pregnancy", said that infectious hepatitis was a common disease in Australia, but there had been no assessment of its obstetrical significance. His paper presented an account of 50 consecutive cases of hepatocellular jaundice met with personally in Victoria during a period of a little more than three years. The disease usually followed a benign course, and it was considered that that was probably determined by the adequate nutritional background of the community. Its most important effect, the frequent precipitation of labour, was seen in cases presenting in the last trimester. Patients with prolonged jaundice were successfully delivered and eventually completely recovered. The obstetrical hæmorrhages were not a serious problem. Hepatitis had no significant influence on perinatal mortality, and, in the present series, was not responsible for any congenital malformations of the fœtus. There were two difficulties in diagnosis: jaundice due to chlorpromazine, and the possibility that the increased incidence of hepato-cellular jaundice in late pregnancy might be due, in part, to a condition described as acute fatty liver of pregnancy. The latter might be an explanation of the increased incidence of pre-eclampsia in patients presenting at that period of gestation. Treatment was along conservative lines, and the only indications for delivery were either progressive deterioration or acute liver failure in late pregnancy.

K. G. P. WORNER (Western Australia), in opening the discussion, referred first to the influence of the disease on the mother. He said that in Dr. Forster's paper there were no maternal deaths in 50 cases. Zondek had had five deaths in 29 cases; Mickal had two deaths in 15 cases. Papers from India and Tunis showed an appreciable maternal mortality. Whilst those from Denmark and Germany showed the same trend as the present paper, all observers were agreed that poor nutrition had an adverse effect on the course of the

disease, but that that was independent of pregnancy. Turning to the influence of the fœtus, Dr. Worner said that in the literature, 21 cases of hepatitis in the first trimester had been reported, resulting in five abnormalities and three abortions. It was thought that many cases in which no abnormality resulted were unreported, and the incidence of abnormalities might be in the expected range. As he saw it, seven of Dr. Forster's cases had occurred in the first trimester, with two abortions and no fœtal abnormality. Later in pregnancy there appeared to be no effect on the fœtus. Altogether in that paper there were 50 cases with no fœtal abnormality reported.

Dr. Worner then referred to the influence on the pregnancy. He said that Dr. Forster had reported a marked increase in the incidence of toxæmia of pregnancy. That was interesting and significant. In six out of 26 cases occurring in the last trimester there was evidence of toxæmia, as indicated by a rise of blood pressure and albuminuria. That was in contradistinction to the normal rate of 35 per 1000. The abortion incidence of three in 24 patients was what one would expect. Commenting on the influence on labour, Dr. Worner said that there was a high incidence of premature labour (eight out of 18 cases). He wondered whether the suggested explanation of hormone imbalance was correct. Would not the same factors operate early in pregnancy, causing a high abortion rate? Six out of eight patients came into labour at the thirty-eigth or thirty-ninth week. That rate was also high. In the series there was no incidence of post-partum hæmorrhage due to blood coagulation defect. The occurrence of that had been stressed by other authors. Dr. Forster had suggested transfusion with fresh blood. Dr. Worner wondered whether fibrinogen would be of any value. Apparently infectious hepatitis in pregnancy produced no significant disturbance of lactation. Referring to treatment, Dr. Worner said that all authors agreed that conservative treatment was best. That was a diet rich in protein and carbohydrates, of low fat content, with vitamin supplement, especially *B* complex. Both Roth and Mickal referred to the use of adrenal cortical extract in times of stress, and stated that it might be "life saving". Neither gave any detail, and Dr. Forster had not referred to it. Frucht and Metcalfe in 1954, in a small series of 11 cases, had found that infective hepatitis resulted in slight, non-progressive liver damage in nine. That was shown by an increase in the serum bilirubin level above 1% in five cases, a high serum globulin level in four cases and enlargement of the liver in the whole nine. On the other hand, Mickal had followed up 10 of his patients for periods of three months to five years, and had found no evidence of liver damage.

Summing up, Dr. Worner said that the occurrence of infective hepatitis in pregnancy might be regarded with caution, but there was no need for any panic measures in the interest of either mother or baby.

JOHN COLEBATCH (Victoria) offered three comments. The first was that clinically it was virtually impossible to differentiate between infectious hepatitis and homologous serum jaundice or hepatitis. Certainly Dr. Forster's cases could reasonably be assumed to be examples of infectious hepatitis, as they had occurred during what amounted almost to an epidemic. But in any individual case it was seldom possible to be sure of excluding homologous serum hepatitis, and that infection could be contracted without having a blood or serum transfusion; an injection with a syringe contaminated with the H.S. virus was sufficient to cause it. Secondly, the facts suggested that maternal infectious hepatitis did not often produce significant infection in the fœtus. But intrauterine infection with homologous serum hepatitis was a far more serious matter. A number of cases had been described in Melbourne and elsewhere in which new-born infants had died early with hepatitis, with or without cirrhosis, under circumstances indicating intrauterine infection with H.S. virus as the most probable explanation. Thirdly, it was interesting that no congenital malformations had been detected in Dr. Forster's series of 50 cases, as most pædiatricians could recall seeing such malformations in children whose mothers had been diagnosed as having had infectious hepatitis in the earlier part of pregnancy. At least one paper in the recent literature purported to show a relationship between the two. Dr. Colebatch therefore thought it wise to keep an open mind with regard to the possible danger to the fœtus until more information was available.

Dr. Forster, in reply, said that he did not agree that the disease was very dangerous to the baby. Most infants were never examined by the pædiatrician.

Prematurity and Postmaturity.

R. D. MACBETH (N.S.W.), in a paper on "Prematurity and Postmaturity", drew attention to the great infant mortality from prematurity, and examined the main causes of premature birth with the object of reducing the incidence of premature births and delivering more healthy babies when early delivery was inevitable. Turning to the question of postmaturity Dr. Macbeth said that it was considered rare, and pointed out that far too many women had labour induced for wrongly diagnosed postmaturity. In view of that he examined the methods of diagnosis of postmaturity. With regard to postmature babies Dr. Macbeth said that two main types were found: (*a*) big healthy ones associated with disproportion, (*b*) small emaciated ones associated with placental senility. He went on to describe methods of observing how the fœtal-maternal association was functioning, and pointed out that it was of far greater importance than the actual duration of the pregnancy. Conditions which gave rise to specially high risks to the postmature baby were listed, and the management of postmaturity was discussed.

J. L. TAYLOR (Western Australia), in opening the discussion, said that Dr. Macbeth was to be commended for his sensible and conservative attitude. He had emphasized that the condition was rare; but Dr. Taylor believed that it was a real clinical entity, and to deny its existence was almost as mischievous as to carry out surgical induction of labour in all cases in which the pregnancy went on for more than 10 or 12 days past the expected date of confinement. Before a pregnancy could be labelled as post-mature, certain criteria must be fulfilled. (i) The patient must be certain of the date of the commencement of her last menstrual period. (ii) Her menstrual cycle must have a regular rhythm of about 28 days. A six-weeks cycle could introduce an error of two or three weeks by the conventional methods of estimating the expected date of confinement. There was nothing else of any value in estimating that date. If those conditions were fulfilled, the problem seemed to be to pick the case in which the fœtal oxygen reserve was low. Clues to that condition were (i) a decrease in the amount of *liquor amnii* on clinical estimation, (ii) a decrease in weight, (iii) a marked change in the character of the fœtal movements, which an intelligent patient might notice. In such a case, surgical induction of labour was justifiable, more especially in the presence of several complicating factors: (i) a history of blood loss in the first trimester; (ii) hypertension; (iii) preeclamptic toxæmia; (iv) sterility; (v) an elderly primigravida.

R. F. MATTERS (South Australia) asked what were the results of the use of relaxin, and how long after rupture of the membranes labour might be postponed by strict rest in bed.

KATE CAMPBELL (Victoria) referred to the difficulty in assessing when the life of the fœtus was becoming endangered, and asked whether the work of the Swedish obstetrician referred to was helpful in that respect—(*a*) the cytology of the vaginal epithelium, (*b*) the pH of the vaginal secretion, (*c*) the type of Döderlein bacillus present.

Dr. Macbeth, in reply to Dr. Matters, said that he had had no personal experience with relaxin; it was still a very expensive drug. He had known of a case in which the pregnancy continued for three months after rupture of the membranes; usually labour followed in a few days. Dr. Macbeth suggested the use of a microphone strapped over the site of the fœtal heart sounds for continuous recording. Usually there was sound warning of fœtal heart distress, but it was missed.

Accidental Hæmorrhage.

LANCE TOWNSEND (Victoria), in a paper entitled "Accidental Hæmorrhage—Maternal and Fœtal Results", discussed the management and outcome of pregnancy in 588 patients treated for accidental hæmorrhage at the Royal Women's Hospital, Melbourne, during the five-year period 1951-1956. He said that accidental hæmorrhage was now classified in some overseas clinics by correlating the clinical picture with the amount of placental separation that had occurred. After discussing that classification and recommending its use, he said that, in brief, the new classification was based on the amount of placental separation: Grade 1 where there was up to one-quarter of the placenta separated, Grade 2 where there was from one-quarter to two-thirds separated and Grade 3 where more than two-thirds of the surface was separated. The clinical picture could usually be correlated with the amount of separation. In outlining routine treatment of the three grades, Professor Townsend recommended in Grade 1 conservative management; in Grades 2 and 3 rapid and complete blood replacement was the major line of treatment. In all grades the baby was delivered by the vaginal route. Labour was induced when the period of uterine tenseness passed. Hypofibrinogenæmia was treated by the administration of fibrinogen.

Professor Townsend then presented the following maternal results. No maternal deaths occurred during the five years under review. Only eight patients in the series were delivered by Cæsarean section; the indications in seven cases were not related to accidental hæmorrhage, only one being indicated by fœtal distress due to placental separation. The incidence of oliguria and hypofibrinogenæmia was low. The small number of patients in which complications occurred and the absence of any maternal deaths justified the claim that rapid and complete blood replenishment was the primary method of treatment and showed that there was no place for Cæsarean section in the treatment so far as the mother was concerned.

In presenting the fœtal results, Professor Townsend said that in the booked patients the fœtal wastage was 20% and in the non-booked patients it was 29%, the loss in the whole series being 24%. The fœtal wastage in booked patients compared favourably with that from centres where Cæsarean section was often used for fœtal indications. Of the 144 babies lost, 71 died before admission to hospital; and, after a critical analysis of the other 73 case-histories, it could be suggested that earlier delivery by Cæsarean section might have saved 10 babies and better obstetric care another 12. The problem of prematurity was very real, as the maturity of the pregnancy in 28% of the patients was 33 weeks or less when the accidental hæmorrhage occurred. In the patients whose maturity was 34 weeks or more, 95% of the babies survived. It was in that group that the salvage rate might be further improved by the use of Cæsarean section when fœtal distress occurred. Five cases of fœtal distress were seen in the five-year period, showing that fœtal distress was rarely detected in cases of accidental hœmorrhage.

J. GLYN WHITE (Victoria), in a paper entitled "Accidental Hæmorrhage: The Review of the Infants Who Survived", said that, as Professor Lance Townsend had already stated, accidental hæmorrhage had occurred in 588 patients. There were 111 stillbirths and 33 neonatal deaths, leaving a total of 444 babies who were discharged from hospital, and 226 (51%) were reviewed; of those, 211 were considered to be within normal limits, seven were definitely abnormal and eight were classified as "doubtful" babies. The remaining 49% could not be traced. Amongst the seven abnormal infants the abnormality in five was attributable to accidental hæmorrhage; of the other two the abnormality in one (spastic quadriplegia) was the result of encephalitis at the age of ten and a half months, and the other infant died at the age of 23 months from multiple congenital abnormalities (congenital heart disease, hare-lip and cleft palate, absent ear). The last-mentioned two were excluded as not being directly due to accidental hæmorrhage. Of the other five abnormal babies, one was mentally retarded, one was an epileptic and mentally retarded, one had a "tremor" type of cerebral palsy, one had spastic diplegia, and one had hemiplegia. None of the eight "doubtful" babies showed any signs of locomotor disability, but presented with evidence of possible brain damage as manifested by convulsions, breath-holding attacks, behaviour problems, delayed speech and speech defects. In summary, 13 children (5·8%) of the number reviewed showed evidence of brain damage or suspected brain damage.

Dr. White then presented in tabular form a summary of the age groups and of the gestational age of the children reviewed. He said that a study of the table of gestational age suggested that prematurity might have been the major ætiological factor in the causation of the infant morbidity, as 20% of the babies of a gestational age under 32 weeks showed some evidence of brain damage, whereas, of those who had a gestational age of over 32 weeks, only 3·6% were regarded as being abnormal.

Turning to the results in the group of mothers who required blood transfusion, Dr. White said that it might have been anticipated that the incidence of infant morbidity would be higher in that group, but such was not the case. In the 160 cases in which the mothers were given blood transfusions the fœtal mortality was 80 (50%), and 80 of the babies left hospital; of those 80 babies, 40 attended for review, and in only one was there evidence of brain damage. That child had a severe degree of stammer. In order to ascertain whether there was any evidence during labour or the neonatal period which would be of prognostic value the labour ward charts and neonatal histories of the abnormal and doubtful babies were reviewed. Close study of the labour ward charts by Professor Townsend failed to reveal any evidence of fœtal distress as judged by present-day standards. Examination of the neonatal notes showed no record of abnormality in two. One child with mental retardation had been born at 30 weeks' gestation, had cried in 30 seconds and had been quite jaundiced on the third day; it weighed two pounds fifteen ounces at birth.

A child with hemiplegia was born at 30 weeks' gestation and was cyanosed at birth; it was 35 minutes before rhythmic breathing was established; the birth weight was four pounds.

A child with spastic diplegia was born at 31 weeks' gestation, its condition at birth was fair, it had recurrent cyanotic attacks in the first 48 hours, and was given a simple blood transfusion at the age of nine weeks; its birth weight was three pounds. The neonatal charts of the eight "doubtful" babies showed that four were regarded as quite normal and four had cyanotic attacks during the first 72 hours of life; it was interesting to note that the second four were all in the gestational age of 30 to 32 weeks.

In conclusion Dr. White said that it was obvious that accidental hæmorrhage was a potent cause of fœtal wastage and infant morbidity; until the problem was solved, the pædiatrician's task remained of salvaging, to the maximum extent, the "accidental" neonate. As there seemed to be all grades of damage to the fœtus in that condition from fatal to severe to slight to apparently nil, it appeared that there must be a percentage of the babies in whom the intra-uterine anoxia might have caused "reversible" damage to cells of the central nervous system; if by adequate management further anoxia in the neonatal period could be prevented, then the damage was reversed. If, on the other hand, further anoxia occurred, then the hitherto "reversible" damage became "irreversible", and a neonatal death or a brain-damaged child resulted.

F. J. BROWNE (New South Wales), in opening the discussion, said that he did not agree that toxæmia and chronic hypertension were uncommon and unimportant causes of accidental hæmorrhage. In his own experience one or other was present in about 80% of cases. Professor Townsend had quoted Feeney of Dublin, who had reported a frequency of 20%; but Feeney's standard of chronic hypertension was a blood pressure over 160/90 millimetres of mercury. A systolic blood pressure over 160 millimetres of mercury, particularly if it rose quickly, was always apt

to cause accidental hæmorrhage, which could be prevented by keeping the blood pressure below that level. Professor Browne went on to say that Professor Townsend had claimed that rapid and complete blood replacement would keep the incidence of cortical necrosis of the kidney to a minimum. In his (Professor Browne's) opinion, such replacement had little or no effect in preventing cortical necrosis, which was caused by spasm in the small arteries supplying the nephron, due probably in most cases to toxic products absorbed from the damaged uterine muscle. By the time the patient came under medical care, the damage to the kidney had nearly always been done. Cortical necrosis did not occur in *placenta prævia* or post-partum hæmorrhage. Massive transfusion might do as much harm as infusion of sodium sulphate solution, which was formerly used and often caused pulmonary œdema.

Professor Browne went on to say that great care must be taken in distinguishing accidental hæmorrhage from unavoidable hæmorrhage due to *placenta prævia*. The distinction was not usually possible without a full internal examination, which was seldom necessary. If there was doubt, the case should be classed as "ante-partum hæmorrhage of uncertain origin". Unless that was done, statistics could easily be vitiated. In the treatment of accidental hæmorrhage, especially the severe concealed type, there was no place for the vaginal pack, which was useless and increased shock.

W. D. JACKSON (Victoria) said that in his opinion the first line of treatment of shock must be blood transfusion. He asked what other line of treatment there was.

R. NATTRASS (Western Australia) agreed that Cæsarean section had little place in the treatment of accidental hæmorrhage.

GORDON KING (Western Australia) said that he had been impressed by the low perinatal loss. He also said that he was not clear on the criteria for classification of accidental hæmorrhage. He advised routine study of the placenta and membranes, combined with an attempt to locate the site of the placenta *in utero*, and said that no diagnosis of accidental hæmorrhage was made unless there was evidence on the placenta. Professor King went on to say that he thought it was the exception rather than the rule to find accidental hæmorrhage without some rise in blood pressure. He considered that there was a place for Cæsarean section when fœtal salvage was possible.

G. SIMPSON (Victoria) agreed with Professor Townsend that pre-eclampsia was not the predominant cause of accidental hæmorrhage. He also supported Professor Townsend's proposed classification. Dr. Simpson finally said that he believed in the existence of a marginal sinus, and in its rupture as a cause of ante-partum hæmorrhage.

R. C. GILL (New South Wales) said that the improvement in the prevention of toxæmia had reduced the incidence of accidental hæmorrhage. He agreed that Cæsarean section had a place in the management if it was performed early for salvage of the fœtus. He had noted the high incidence of congenital abnormalities in the series.

Professor Townsend, in reply, said that he agreed with what Dr. Jackson had said—the way to treat loss of blood was to give blood. To Dr. Nattrass, Professor Townsend said that his series showed no Cæsarean sections and no maternal deaths. However, he agreed that Cæsarean section might be performed occasionally, when the chance of fœtal salvage was good. Occasionally a congenitally deformed fœtus would be found. To Professor King, Professor Townsend said that he did not agree that Cæsarean section was best for the Couvelaire uterus. In reply to Professor Browne, Professor Townsend said that he could not agree that 80% of cases of ante-partum hæmorrhage should be put in the "unknown" group. Professor Townsend finally said, in reply to Dr. Gill, that the figure of 1% for accidental hæmorrhage was a world figure, and his figure.

Pre-Diabetes and Diabetes in Pregnancy.

L. O. S. POIDEVIN (South Australia) read a paper entitled "Pre-Diabetes and Diabetes in Pregnancy". He said that pre-diabetes was a rather indefinite syndrome; there were six points in diagnosis. (i) A history of previous babies weighing more than nine or nine and a half pounds at birth. (ii) A history of a previous unexplained still-birth or neonatal death. (iii) Lowered glucose tolerance; a blood sugar level of 120 milligrammes per 100 millilitres at two and a half or three hours after the ingestion of glucose should be regarded as suspicious. (iv) A family history of diabetes, with particular reference to the obstetric history of any sisters. (v) Palpation of a large baby; that was difficult, and obviously, by itself, it was of no diagnostic value, but as part of a syndrome it might be of some help in diagnosis. (vi) The patient's being overweight for her stature. Rarely would all those signs be present in one case, and care was necessary in assessing the findings. Dr. Poidevin then described a case to illustrate how a pregnancy in a pre-diabetic might be brought to a successful conclusion. He said that when a thorough investigation strongly suggested that that state was present, the pregnancy should be treated as it would in an established diabetic. It might be anticipated that after her pregnancy the patient's insulin production would be sufficient for her needs until later in life, when diabetes would probably develop. Turning to diabetes, Dr. Poidevin said that it might be known to exist prior to the pregnancy, it might be detected for the first time during the pregnancy or its detection might even be delayed until the puerperium. The detection of the condition was of the utmost importance. There were five principles of treatment. (i) There should be close medical control of the diabetic state through the changing phases of pregnancy. (ii) Pre-eclamptic toxæmia should be avoided. (iii) Intercurrent infections should be avoided. (iv) Intrauterine fœtal death should be prevented, usually by delivery no later than the thirty-seventh week, often at the thirty-fifth or thirty-sixth week. (v) Delivery should be easy. Surgical induction of labour was used if the history of previous labours showed good uterine action and average pelvic measurements; otherwise Cæsarean section was performed. Medical induction of labour should not be used. Discussing management of the infant, Dr. Poidevin said that such babies were often œdematous and required as little handling as possible for the first 48 hours. After gastric aspiration at birth, the baby should be placed in a crib with its head low, and no attempt should be made to give any fluids for 48 hours. Oxygen and humidity should be available. The administration of glucose into the umbilical vein could do no harm and might do some good, whereas giving it intragastrically might be harmful if vomiting should occur. It appeared that in babies that survived, the pancreatic disturbances present in the neonatal period corrected themselves, since the results of glucose tolerance tests later in childhood usually appeared normal. In the babies that died, the commonest pathological findings were: (i) a high incidence of hyaline membrane in the lung alveoli; (ii) individual organs at the upper limits of normal weight; (iii) extramedullary hæmopoiesis, particularly in the liver; (iv) excessive subcutaneous and subperitoneal fat; (v) hyperplasia of the islets of Langerhans; (vi) pituitary infiltration with eosinophils; (vii) a high incidence of congenital defects; (viii) hypoglycæmia, quickly correcting itself after birth. Dr. Poidevin then quoted some statistics from Adelaide. He said that in suspected cases, of 140 glucose tolerance tests, the results of 39 were abnormal. The over-all fœtal loss from 42 diabetic pregnancies was 26%. With the exclusion of those cases of diabetes in which treatment was inadequate (the diabetes having been detected late in pregnancy or in the puerperium), the fœtal loss was 18%. Dr. Poidevin finally said that many questions remained to be answered before they could hope for a better fœtal salvage. The maternal risk was no greater than in any other pregnancy; but they had yet to learn the prevention of hyaline membrane formation with subsequent atelectasis. The real significance of the hypertrophied islets of Langerhans, and the part metabolic disturbances played in intrauterine and neonatal death, were not understood. Such questions had to be answered before the management of the babies could be improved.

F. J. BROWNE (New South Wales) said that the glucose tolerance curve was delayed in normal pregnancy, but returned to normal after delivery. The test was therefore

of no value in the diagnosis of pre-diabetes during pregnancy, and should be repeated six weeks after delivery.

KATE CAMPBELL (Victoria) said that the administration of cortisone to the pre-diabetic pregnant woman would unfold the true diabetic curve. Commenting on the diabetic baby, Dr. Campbell said that the appearance as well as the size was often characteristic; the "tomato" facies might be present even in small babies.

Dr. Poidevin, in reply, said that he was well acquainted with Professor Browne's work on the glucose tolerance test in pregnancy. He agreed that Cæsarean section was not necessarily the best way to deliver the diabetic.

The Use of Obstetric Forceps Today.

ROLAND NATTRASS (Western Australia) read a paper entitled "The Use of Obstetric Forceps Today". He said that one of the most likely means for continuing the reduction in infant mortality, and especially infant morbidity, lay in the continuation of a campaign to increase knowledge of the correct use of obstetric forceps. It was surprising how frequently they were misapplied. Obstetricians must produce, not only live babies, but perfectly fit ones. They must learn to anticipate fœtal and maternal distress, and so effect delivery before distress occurred. The more frequent use of forceps was a conservative procedure rather than a radical one. It would be preferable to discard all forms of axis traction, as such dangerous strength of pull was usually bad obstetrics. The time factor for the use of forceps was a very useful practical guide. Dr. Nattrass went on to say that there were three main causes of difficulties in forceps deliveries. The first was disproportion. There was no place for high application of forceps, and there was practically no place for mid-forceps application at the present time. The most important recent advance in forceps delivery was the obstetricians' diminishing fear of admitting defeat. The second cause of difficulty was cervical dilatation. Manual dilatation was seldom allowed. The third was malposition of the head. The fœtus should never be extracted face to pubes. Forcible extraction was criminal negligence. The obstetrician should always diagnose the position by palpating an ear. Dr. Nattrass finally said that there should be a routine use of forceps on all after-coming heads in breech extractions. For the successful prophylactic use of forceps, the obstetrician must know all the indications and contraindications.

W. D. JACKSON (Victoria) said that one's experience was not always enough to achieve successful manual rotation in deep arrest. In such cases he found Kielland's forceps useful, and suggested that their use should be taught to students.

R. D. MACBETH (New South Wales) said that he considered the danger of anæsthesia sufficient to hold one's hand from the premature or unnecessary application of forceps.

F. A. BELLINGHAM (New South Wales) said that he considered the teaching of "trial of forceps" to students and young practitioners to be pernicious. Judgement should preclude the trial which ended in failure. Dr. Bellingham stressed the dangers to mother and child.

R. C. WORCESTER (Victoria) said that the use of forceps was decreasing; there had been too many forceps deliveries by leading obstetricians in the past. He believed that nowadays nine out of 10 *primiparæ* were delivered naturally. He advised practitioners not to use forceps before the head was visible.

Dr. Nattrass, in reply to Dr. Jackson, said that experience helped in manual rotation of the head; but he agreed with the use of Kielland's forceps if necessary. In reply to Dr. Macbeth, Dr. Nattrass said that complete liaison between the obstetrician and the anæsthetist was ideal; it would improve the obstetrics of the future. In reply to Dr. Bellingham, Dr. Nattrass said that he considered a trial of forceps was an advance in obstetrics; the danger to mother and fœtus was thus prevented by the early admission of failure. To Dr. Worcester, Dr. Nattrass said that he agreed that in most cases the use of forceps was unnecessary.

Section of Ophthalmology.

President: C. G. H. Blakemore, M.B., Ch.M., F.R.C.S.E., F.R.A.C.S., D.O.M.S., New South Wales.

Vice-Presidents: J. McBride White, M.B., B.S., D.O., Victoria; F. Phillips, M.R.C.S., L.R.C.P., D.O.M.S., D.L.O., D.O., Tasmania.

Honorary Secretary: J. Rogers, M.B., B.S., D.O., Tasmania.

Visual Probems Encountered Under Water.

D. T. BURKE (Victoria) read a paper entitled "Visual Problems Encountered Under Water". He said that contrary to popular opinion, the skin-diver might be seriously handicapped by visual problems encountered under water. The classical diver, with his cumbersome suit and trailing airlines, when working in enclosed waters was constantly surrounded by clouds of silt disturbed by his lead-weighted boots. Frequently visibility was negligible. The skin-diver, on the contrary, if he swam virtually unencumbered, by using the technique of neutral buoyancy normally remained clear of the bottom. Dr. Burke then enumerated the problems of interest, and illustrated his remarks by showing a film. The problems he discussed were the following: (i) reduced visual field; (ii) loss of face-mask; (iii) foreshortening; (iv) alterations in visual acuity under water; (v) interference caused by particulate matter in suspension; (vi) variations in under-water light intensity; (vii) the need for contrast. Commenting on the last-mentioned, Dr. Burke said that whenever possible, colour contrast should be sought for in clothing and equipment; the choice of grey and white for the code colours of compressed air cylinders was unfortunate. In conclusion, he said that he considered the present design of face-masks was unsatisfactory, because the field of vision was so restricted. However, skin-divers were quite satisfied with their present equipment. For most purposes vision was adequate, and he was not aware of any instance in the history of Australian skin-diving in which a fatal accident was traced to visual impairment under water. Nevertheless, there was always room for improvement, and further research in face-mask design was indicated.

J. BRUCE HAMILTON (Hobart) said that the paper was interesting and important, both from the point of view of civil accidents and from that of defence, and it should be presented to a larger audience. He asked Dr. Burke if he could explain the pathology in one case that he had met with in which a skin-diver had gone completely blind for a short time on surfacing.

P. A. ROGERS (New South Wales) said that he had met with one case of acute conjunctivitis in a skin-diver.

Another speaker inquired regarding the type of contact lens used.

In reply, Dr. Burke explained that it was a special lens containing an air space. In reply to Dr. Hamilton, Dr. Burke said that the pathology of some of the conditions discussed was rather obscure if one excluded the well-known "bends".

Section of Orthopaedics.

President: Thomas King, M.B., B.S., F.R.C.S., F.R.A.C.S., Victoria.

Vice-Presidents: W. A. Hugh-Smith, M.B., B.S., M.Ch. (Orth.), New South Wales; Ian G. McPhee, M.B., Queensland; T. G. H. Hogg, M.B., B.S., F.R.C.S.E., Tasmania.

Honorary Secretary: A. McL. Millar, V.R.D., M.B., B.S., F.R.C.S.E., F.R.A.C.S., Tasmania.

Chronic Lumbo-Sacral Pain.

THOMAS KING (Victoria) took as the subject of his presidential address "Another Look at the Causes and Management of Chronic Lumbo-Sacral Pain". He said that Beadle had given the first English report on the work of Schmorl and Junghann (1932) on the importance of the intervertebral disk in spinal diseases. They had observed prolapse of the *nucleus pulposus* after complete rupture of the annulus. Mixter and Barr in 1934 had shown the clinical importance of that observation. Schmorl had drawn attention to the frequent occurrence of incomplete tears and fissures within the annulus. Dr. King said that they were so commonly found in the spine at necropsy that it was the object of his address to put them forward as perhaps the commonest cause of lumbar pain. Knutsson in 1944 had shown that that type of disk degeneration was present if antero-posterior sliding or "instability" of more than two millimetres could be demonstrated by comparing the two separate lateral X-ray views of the spine taken with the patient standing in flexion and extension. Normally there was no such movement. That could be demonstrated before gross radiological evidence of disk degeneration appeared.

Spinal Fusion and Disk Surgery.

NATHAN POLLOCK (United States of America) read a paper entitled "Spinal Fusion and Disk Surgery". This paper has not been received.

MICHAEL KELLY (Victoria) said that he was pleased to hear Dr. Pollock and Dr. King say that they rarely operated on patients with backache, because then, whatever the pathology, the patient did not suffer the misfortune of an operation which, if the diagnosis was wrong, was sure to increase the disability. The type of spinal column which Dr. King so beautifully described was, by his own statement, found in nearly everyone. Logically, therefore, if it was found in nearly everyone, it must be normal, like grey hair or a bald head. If that type of spine was normal, there must be something added to it to cause pain in the back, which did not occur in nearly everyone. The German neurologist Bing said that less than 2% of cases of pain in the back were due to the disk. He said that a disk was about as common a cause of backache as a cerebral tumour was a cause of headache. Amongst people who encountered such cases late in Europe and in the United States, as shown in the literature, there was a reaction against the disk as a cause of pain. The real test of an advance in medical science was whether it benefited the patient and reduced his disability. Statistics showed that the so-called advance under discussion had not benefited the patient. Thus a police surgeon had reported that the average period of disability from lumbago and sciatica before 1940 was three weeks, whereas the average period of disability from disk disease between 1948 and 1955 was six weeks. Aitken and others in the United States had reported similar statistics. Dr. King had said that the first cause of backache, which he had not stopped to discuss, was disease of the soft tissues. Dr. Kelly said that if analogy was used and one thought of pain in other parts, it would be remembered that chronic pain in other parts was known to come from the soft tissues, in other words from muscular and fibrous tissues as in tennis elbow. Despite Dr. King's persuasive and well-presented arguments, the probable truth was that the muscular, ligamentous and fascial structures of the back were the common cause of backache.

Knee Injuries.

EMMET SPRING (Victoria) read a paper entitled "Observations on Knee Injuries", referring mainly to meniscus injuries. He pointed out that, while the diagnosis of such injuries was in some cases obvious, in others it might be very obscure, and a detailed history was of the utmost importance. In the course of some remarks about the "locked knee" he stated that a torn meniscus would rarely, if ever, heal, and that a meniscus which had been displaced more than once should be removed. One of the most significant clinical signs in meniscus injuries was the inability to attain full extension. This limitation might amount to only a few degrees, and was often accompanied by a sense of elastic resistance at the limit of extension. The mechanism of this was illustrated. Dr. Spring said that this might be the only positive sign, and was virtually diagnostic. Other causes of limitation of extension were a loose body in the joint and avulsion of the anterior tibial spine, but those could be demonstrated by X-ray examination, unless the loose body was radio-translucent. In avulsion of the anterior tibial spine a detailed history again often provided useful pointers to the diagnosis. McMurray's test provided a useful clinical sign, but this could not always be elicited in the presence of an effusion. A modification of this test devised by Mr. Lennox Teece was a further help. For satisfactory function replacement of the avulsed spine was essential, and in delayed cases operation was often necessary. Dr. Spring said that two other conditions which might be associated with injury to the knee joint were *osteochondritis dissecans* and osteomalacia of the patella. The former was more common in adolescents than meniscus tears, and probably resulted from the same kind of trauma. The probable pathogenesis of the condition was described. In the early stages of the condition treatment could be conservative; but if sequestration had occurred, the loose body must be removed and the area trimmed. Chondromalcia affecting the articular cartilage of the patella might be associated with repeated trauma. That condition had only recently been recognized, but was an important source of disability in the knee. Diagnosis could be made on history, the finding of tenderness under the borders of the patella, and painful crepitus elicited when the patella was moved while being pressed firmly against the femur. Minor degrees of the condition should be treated conservatively, but in advanced cases excision of the patella might be necessary. Dr. Spring mentioned more serious fractures involving the knee only to point out that those might mask concurrent lesser injuries such as those described in his paper.

DOUGLAS PARKER (Tasmania) agreed that careful selection was necessary before surgery, and that the history was very important. He said that fat pad lesions sometimes aped internal derangements. One should always operate immediately when the cartilage was locked. Cruciate lesions were often caused by a sudden slip. It was necessary to make an X-ray examination or one might miss a loose body. Chondromalacia of the patella had been diagnosed only in recent years. Patellectomy was seldom necessary. Cases due to a direct blow had given the best surgical results.

W. B. LAW (Tasmania) asked what was the method of repairing cruciate ligaments. He said that he always removed the cartilage when removing cysts of the cartilage.

A. McL. MILLAR (Tasmania) said that he had had good results in the treatment of cyst of the cartillage by operation and injection of hydrocortisone.

H. BEATTIE (New South Wales) said that he always aspirated the knee in cases of hæmarthrosis following surgery.

W. SWANEY (Victoria) said that the diagnosis of cartilage lesions in young women was seldom correct. The symptoms were often due to subluxation of the patella.

Congenital Dislocation of the Hip.

P. G. JONES (Victoria) read a paper on congenital dislocation of the hip, based on a series of 21 patients treated by the Denis Browne method. He also showed a cinematographic film in colour to illustrate the method. In the series of 21 patients, 32 dislocated hips had been treated. Dr. Jones said that the short-term results—an average follow-up period of four years for 20 patients—were satisfactory; reduction had been maintained and the hips were stable in all instances. Osteochondritis had occurred in 11 of the 32 hips. Dysplasia had been present in seven of those hips before treatment began. In nine of the 11 hips, the degree of flattening of the femoral head was minimal. Redislocation after an initial period of splinting had occurred in four cases. The four patients had responded well to a second reduction and splinting, and they now had stable hips. Dr. Jones finally said that the advantages of the Denis Browne method of treatment could be summarized as simplicity, mobility, stability, convenience and economy.

R. L. STEPHEN (New South Wales) said that he preferred to use traction first when there was a lot of shortening. He carried out manipulation with the patient on his back instead of prone. Subcutaneous tenotomy of the adductors was helpful if there was any difficulty in getting full abduction. Patients with marked anteversion of the back required to be put up in internal rotation, and a rotation osteotomy should be carried out later. He agreed that the Denis Browne splint was very good.

T. J. CLAFFEY (New South Wales) spoke of the operative treatment as used at Oxford by Somerville. He said that it had the advantage that after six weeks the child could walk normally.

D. G. MCKAY (South Australia) said that early diagnosis was most important and that it was often very difficult to make a diagnosis radiologically.

T. G. H. HOGG (Tasmania) had found that in Tasmania most of the cases came from one country area, and very few from Hobart or Launceston.

Should the Smith-Petersen Pin be Abandoned?

T. J. CLAFFEY (New South Wales) read a paper entitled "Should the Smith-Petersen Pin be Abandoned?". He said that if one took an over-all look at the state of affairs regarding fracture of the neck of the femur before and after the introduction of the Smith-Petersen pin, several points could be made. The first was that there had been a marked reduction in mortality. The second was that few people, including the very aged, could not be offered the advantages of pinning—particularly the comfort of immobilization and the early ambulation which it made possible. Neither of those was really a direct result of the pin, but they were really direct results of modern medical progress, particularly progress in anæsthesia. The pin was merely the mechanical instrument enabling medical science to work at its best with the least possible hindrance. The third point was that morbidity was still high. The great cause of that was avascular necrosis of the capital fragment, which could be expected in some 30% of cases. It could occur in many ways. Probably in most cases it occurred at the time of the original injury. The role of the Smith-Petersen pin in the production of avascularity appeared to be negligible. Experiments on injected femoral heads seemed to show that it was virtually impossible so to place the Smith-Petersen pin that it could cut off sufficient of the blood supply to cause avascularity.

Dr. Claffey said in conclusion that, in view of the points he had made, he felt justified in stating that the Smith-Petersen pin had been a great advance in the treatment of fractures of the femoral neck and that the general impression was thus true. However, the fracture was still a great worry in many cases, and much fundamental work was still needed to elucidate basic problems, but there was no real evidence to suggest that the pin should be either abandoned or replaced.

THOMAS KING (Victoria) said that fracture divided most, if not all, of the vessels; therefore it did not matter where one placed the nail. The neck of the femur was often shattered and the neck shortened.

The Nature and Treatment of Osteoarthritis.

C. H. HEMBROW (Victoria) read a paper entitled "The Nature and Treatment of Osteoarthritis". He said that osteoarthritis should not be regarded as a disease, but as a state or process of aging. It was important to remember that, and to treat the patient and not his X-ray findings, which might engender an attitude of hopelessness. Aging was a continuous process, beginning immediately maturity was reached; that observation applied to joints, as well as to other tissues. X-ray examination was valuable, in that it showed the state of the articular cartilage. While that cartilage was present, there was hope of some function; but without it the possibility of joint function was lost completely. Dr. Hembrow went on to say that osteoarthritis itself was painless; the symptoms were produced by complications, which were frequently remediable. They could be classified in three groups—(i) mechanical in origin, (ii) inflammatory, (iii) due to changes in the adjacent bone. A careful history was of the utmost importance in determining the cause of the pain, and since the function of a joint was mechanical, the response of the symptoms to rest and to movement was helpful in diagnosis. Dr. Hembrow gave examples of mechanical failure, and said that the symptoms were usually sudden in onset, and were produced by activity and relieved by rest. Thus removal of the mechanical factor by manipulation or operation would give relief in many cases, whether other changes were present or not. Turning to the second category, Dr. Hembrow said that in chronic inflammation the symptoms were worst on rising in the morning, and the joint felt stiff and sore. The joint might move more freely with activity, but the pain returned as the day progressed. Chronic inflammation in joints resulted from chronic trauma, infection or toxæmia. Dr. Hembrow outlined the diagnosis and treatment of chronic inflammation in joints, and stressed the need to treat all that was wrong with the patient, and not to treat the patient in bits. With regard to the third class of complications, Dr. Hembrow said that symptoms due to changes in the adjacent bone arose from the effects of associated circulatory conditions. If the precise nature of the symptoms in osteoarthritis could be determined, suitable treatment would give relief. However, it was not always easy, as the causes were often mixed—mechanical, inflammatory, or sclerosis of bone—and no one method would give complete relief. The elderly patient often had poor powers of recovery and might be non-cooperative. Pain of the referred type might be an early and puzzling symptom, as no cause was found. Dr. Hembrow finally referred to the role of minor injuries in osteoarthritis. He said that, in his opinion, the apparent "lighting up" of the latent disease by a minor trauma would more properly be regarded as incomplete recovery from the minor trauma. Recovery from injury in a degenerating joint was slow and often imperfect. Treatment should be carried out carefully for an adequate time. If the injury was a major one, irreparable damage to the articular cartilage might occur. Dr. Hembrow discussed the treatment of osteoarthritis in detail, and stressed the importance of helping the patient to continue as normal a mode of life as possible.

T. J. CLAFFEY (New South Wales) said that osteoarthritis was not a disease but an aging process. It was a problem in compensation when the compensation was better than the old age pension. Drilling of the hips when a lot of cysts were present was sometimes helpful. Excision of the head and neck of the femur was useful in osteoarthritis of the hip.

Section of Oto-Rhino-Laryngology.

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Laryngeal Granuloma.

DR. ASHLEIGH DAVY (New South Wales) took as the subject of his presidential address "Laryngeal Granuloma, with Special Reference to Cases in Australia". He said that laryngeal granulomata arose on or adjacent to the vocal cords, and almost always resulted from trauma with abrasion of the glottic epithelium. That trauma might be from within, as from vocal abuse, or from without, the commonest cause being intratracheal anæsthesia. The most vulnerable part of the cord was at the vocal process of the arytenoid cartilage, where the mucous membrane was thinnest. In use and misuse of the voice those processes were forcibly approximated. Abrasion from an external cause also usually occurred at the vocal processes. Secondary infection followed abrasions, often leading to perichondritis of the vocal processes of the arytenoid. Granulation tissue formed and might proliferate to form a sessile granuloma; that might change into a pedunculated structure. Abrasions due to internal causes were usually bilateral, and the subsequent pathological changes took place slowly over a period of years; pedunculation rarely occurred, the usual condition being a sessile granuloma on one side and a shallow ulcer on the other. A granuloma from endolaryngeal manipulations might be unilateral, and the changes occurred more rapidly. Spontaneous cure of granulomata sometimes occurred by resolution or by expulsion after pedunculation. It was thought that respiratory tract infection predisposed to the formation of laryngeal granuloma. Dr. Davey quoted a case described by Dr. Millar in which granulomata recurred twice after operative removal. When chronically infected tonsils were removed with the granulomata on the third occasion, the cords remained clear. Another author considered that mild laryngitis or a slight cold might be a factor in the causation of granulomata occurring after intratracheal anæsthesia.

The present paper was concerned mainly with lesions which were the direct result of treatment for some other condition; the commonest cause was intratracheal anæsthesia, but some cases followed direct laryngoscopy without intubation. Dr. Davy had seen one patient with a recurring sessile granuloma and contact ulcer which had followed administration of a general anæsthetic without intubation of any kind. Dr. Rundle had told him of two cases of laryngeal granuloma which followed bronchoscopy with an old bronchoscope. Well over 100 cases occurring after intratracheal anæsthesia had been reported in various parts of the world. An Australian investigation had supported the belief that the condition was less rare than the number of published cases indicated. None had been reported in Australia, but a circular to Australian oto-laryngologists revealed over 50 cases.

The symptoms of laryngeal granuloma were persistent hoarseness, sometimes an irritable cough and, occasionally, with bilateral granulomata, dyspnœa. After intratracheal intubation a laryngeal abrasion should be suspected if the patient was hoarse; there might also be pain in the region of the larynx. Most of the patients were women, probably because of the smaller size of the female larynx and its thinner epithelium. Most cases followed head and neck surgery, during which the head was usually in an extended or hyperextended position. That increased the pressure of the Magill tube on the posterior part of the larynx. Large tubes were more likely to cause damage than small ones. The pressure of the Magill tube on the posterior part of the larynx might be lessened or avoided by inserting the hypopharyngeal pack in such a way that the tube was lifted forward instead of being pressed backwards. One authority recommended the use of a double-curved intratracheal tube. Hardness of the tube was probably not very important. One of Dr. Davy's cases had followed the use of a straight gum-elastic tube, and Dr. Flagg, who used metallic tubes, reported that no case of granulation had occurred after their use. Tubes became roughened by wear, boiling, immersion in antiseptics, etc. They should therefore be carefully inspected, and discarded if any roughened areas were found. Proper lubrication was important. Trauma during intubation must be minimized. All authorities condemned "blind" intubation, and many emphasized the importance of complete relaxation of the glottis. If the cuff of the intratracheal tube was situated in the glottic opening instead of below it, movement of the tube during the operation was another likely source of trauma. Movement of the cords around the tube occurred in laryngeal spasm, coughing and straining, and imperilled the glottic mucous membrane. That was liable to occur both shortly after intubation and after the end of the operation. Ideally the tube should be removed immediately before the return of the cough reflex. Movements of the cords up and down the tube occurred in association with respiration and with swallowing movements. If the tube was too rigidly fixed by strapping or other means, rubbing movement between the walls of the tube and the respiratory tract must occur. The duration of the operation did not appear to be an important factor. However, in two instances the intratracheal tube had been left *in situ* for 36 hours and for one week respectively; the first patient developed bilateral granulation on the vocal processes, the second a unilateral granulation. Dr. Davy then described four cases which had occurred in his own practice. The appearance and site of the tumour were fairly characteristic. It was usually smooth, rounded, shiny, somewhat pink in colour, and up to a centimetre in diameter. A biopsy might be necessary to distinguish it from other conditions. Prophylaxis entailed due regard for the many possible ætiological factors. Hoarseness and pain in the region of the larynx within a day or two of operation were danger signals. Complete rest of the voice was then indicated, the patient should be warned against "clearing the throat", and coughing should be controlled. Indirect laryngoscopy should be carried out. With laryngeal rest the abrasion on the cord might heal, and that might be assisted by administering a wide-spectrum antibiotic.

Dr. Davy said that with such a limited experience he hesitated to express very definite views on the treatment of granuloma. If, when the patient was first examined a sessile granuloma was present, complete vocal rest was indicated. Treatment of concomitant respiratory tract infection might be necessary. If those measures were not effective, radiotherapy offered the best chance of cure. Operative removal was contraindicated because of the likelihood of recurrence. However, if a biopsy was advisable, the granuloma could be carefully removed with a cupped forceps, flush with the line of the vocal cord. Dr. Davy suggested that that should be followed by a short course of radiotherapy. If pedunculation had occurred, the granuloma could be removed with cupped forceps. When the base of the granuloma was on the vocal process,

removal should probably not be followed by any form of cauterization. All tended to cause perichondritis or necrosis of the vocal processes and thus hindered healing. Complete laryngeal rest was necessary until healing was complete. It was necessary to examine the larynx regularly, and if a recurrence appeared to be developing, the lesion should be given a short course of radiotherapy.

C. EADIE (Tasmania) said that he had never had a case of laryngeal granuloma. He used a gum elastic catheter with no roughness and did not use a Magill tube. He always passed the catheter himself via a laryngoscope.

V. BULTEAU (New South Wales) said that in the treatment of granuloma two factors had been found by high speed cinematography to cause more arytenoid trauma than any other factor. They were cough and clearing of the throat. "Windy whisper" caused little injury.

F. ELLIS (New South Wales) said that a low voice caused more trouble than a high-pitched voice.

H. J. GRAY (Western Australia) suggested that inadequate washing of antiseptic from tubes could cause injury to the vocal cords.

R. V. BLAUBAUM (Victoria) reported cases of granuloma occurring without intubation. He stressed the danger of diathermy in the larynx.

Dr. Davy, in reply, said that "windy whisper" did not seem to be entirely without traumatic effect on the vocal cords. Cases of granuloma due to intubation seemed to occur in women and irritation granuloma in men.

Barotrauma.

D. T. BURKE (Victoria) read a paper entitled "Barotrauma". After referring to the post-war development of the sport of skin-diving, he stated that little had been published to date on the physiological problems encountered under water, so that the medical adviser often had to rely on his own interpretation of the subject. Barotrauma was the most important single factor to be considered. The influence of Boyle's Law was at its maximum in the subsurface zone (0 to 30 feet). If the Eustachian tube remained patent in the subsurface zone, that ensured trouble-free diving, because the pressure/volume effect rapidly tailed off. The current world record dive, to 600 feet, was set in 1956. At that depth the pressure was only 20 atmospheres.

Dr. Burke then discussed the mechanisms involved in the three main forms of underwater swimming, namely, with a short, curved breathing tube or "schnorkel", with the aqualung, and free diving. He said that the behaviour of the middle ear under compression was uncertain, so it was necessary to turn to altitude studies for some information, though certain principles did not apply under water. During ascent the Eustachian tube, acting as a flap valve, cleared every 425 feet, except in the first instance. Dr. Burke said that the precise implication of the 425-foot interval had remained obscure until his calculations revealed a constant pressure decrease of 2% with every such increment in height, irrespective of altitude. The same principle applied under water. Clearance of the Eustachian tube occurred with each decrease of 2% in the ambient pressure. However, as the skin diver passed through the subsurface zone, the pressure change was so rapid that air issued in a steady stream from the middle ear; with partial obstruction, explosive rupture of the middle ear might occur.

Dr. Burke stated that Armstrong and Heim's conclusions on the effects of compression during descent were unsound. He described a series of experiments carried out with the help of the Underwater Research Group of New South Wales. It was apparent from the results of those experiments that the physiology of the middle ear differed radically from what one had been led to believe. A minimum pressure of 250 millimetres of mercury was required for a Eustachian block underwater, rupture of the tympanum membrane was unlikely and not readily predictable, and the requirement for clearances agreed fairly closely with what had been deduced from Boyle's Law. Also, a slow inward leak from the Eustachian tube had been detected.

Dr. Burke then discussed the clinical aspects of barotrauma. He said that it had been anticipated that nitrogen embolism would be a very real hazard for skin divers using the aqualung, but the condition was almost unknown. However, air embolism as a consequence of rupture of the lung would readily occur, even in quite shallow water, if an unskilled aqualung diver surfaced without exhaling. Oto-rhinological barotrauma embraced a variety of lesions, including sinusitis, *otitis media*, tympanic trauma and "cochlear concussion".

Dr. Burke then went on to show that the current theories on the origin of otic pain, and on the pressure which would cause it, were untenable. He said that sinus pain was normally associated with the creation of a partial vacuum by slow gaseous absorption behind a blocked ostium, but in skin diving, because the blood pressure increased with the ambient pressure, the onset of pain in the occluded sinus was dramatic, and frank hæmorrhage might result. Rupture of the tympanum appeared to be rare among skin divers in Australia, and mild degrees of barotrauma were uncommon. With adequate training, the person who practised restraint in his skin diving would enjoy his pastime for years without ill effect. On the other hand deep free diving, chronic tonsillitis, upper respiratory tract infection and careless Eustachian tube technique all predisposed to injury. Dr. Burke discussed the management of tympanic rupture. He said that even under the best conditions, healing took several weeks, and swimming must be suspended during that period.

Dr. Burke went on to say that a chronic variant of aero-otitis media with associated nerve deafness was recognized by aviation medicine, and a similar lesion had been described in caisson workers. The existence of a parallel lesion in skin divers had been first reported in 1954 by Perret. In a preliminary survey Dr. Burke had found that the condition was by no means rare among enthusiastic skin divers. Audiograms showed marked degrees of nerve deafness, particularly in the higher frequencies. Those findings drew attention to the importance of barotrauma as against noise in the causation of nerve deafness in caisson workers and in air crew. In the management of chronic aero-otitis it had been shown that secondary occlusion of the Eustachian tube was usually present and resolved slowly. Radon therapy had achieved spectacular results in aviation medicine, and might be required if conservative measures failed. Further skin diving was inadvisable.

Dr. Burke then showed a short film to illustrate some aspects of the topics discussed.

J. H. SHERREY (Tasmania) referred to two cases, in the first of which a boy, aged 23 years, at a depth of 25 feet had heard a loud noise in the left ear, but experienced no pain. On rising to the surface he had tinnitus and deafness. He was found on examination to have perceptive deafness, which had not subsequently recovered. In the second case the subject had experienced discomfort in the left ear on diving. That passed off, but tinnitus and deafness of a perceptive type were subsequently experienced. Dr. Sherrey said that in neither case was there rupture of the tympanic membrane.

H. H. HARRISON (New South Wales) asked what was the appearance of the tympanic membrane after under-water diving, and if there was any evidence from autopsy of the condition of the cochlea.

Dr. Burke, in reply, said that a condition of cochlear concussion had been reported in divers, air crew, caisson workers and now skin divers. It was apparently a similar condition in each case. He would like to obtain further information before saying anything about the appearance of the tympanic membrane. There was as yet no evidence from autopsy. A question yet to be decided was whether some of the deafness experienced in air crew was due to barotrauma and not to noise.

Corrective Rhinoplasty.

D. OFFICER BROWN (New South Wales) read a paper entitled "Corrective Rhinoplasty, with Special Reference to the Late Effects of Trauma". He said that in Australia 20 years previously there had been very little interest in the subject of corrective rhinoplasty. In the past decade the number of patients seeking nasal alterations had increased in geometrical progression. Those who worked in the field of plastic surgery had of necessity been interested in the psychological background of that trend. Ten years before, most of those patients were New Australians. One imagined those people, exiled from Eastern Europe, fearful lest another day might arrive when a nose alone might cause them to be flung into a concentration camp. They were, he had come to realize, nice people and deeply appreciative. More recently television, modelling and other photographic requirements had produced an ever-increasing nose consciousness. A crooked or humped nose excluded many girls arbitrarily and without appeal. The fact that Madge Elliott remained, with her nose, one of the sweetest and best-loved women of the Australian and later English stage was of no moment. It was rightly pointed out that many a star of the legitimate stage would be totally unacceptable in Hollywood or on television. A good nasal light line was a *sine qua non*. Interestingly enough, plastic surgeons had not been plagued by frustrated and menopausal women. In his experience those women, and men too, often imagined that a face lift would solve all their love-life problems; but it did not and could not. Young teenagers more often fixed on their noses as the source and fountain of their failure to fascinate. Sometimes they were right; often they were wrong. Dr. Officer Brown went on to say that conservatism and understanding were needed. Corrective rhinoplasty could never be carried out to a pattern. Over-all facial symmetry and proportion of line must be maintained. It was not sufficient to be a plain carpenter and make the alterations which the individual demanded. The work in its finer ramifications was difficult, and in his opinion it would always be difficult. The justification for corrective nasal surgery lay in the fact that nasal line and shape gave definition to beauty and, indeed, could quite dominate a face. Equally evident would be the tragic end results of bad or ill-advised surgery. What, then, were the problems cogent to the subject? That it was important they could no longer doubt. The very obvious gratitude of their patients was adequate testimonial.

Dr. Officer Brown then classified simply in two categories injuries such as to cause structural nasal deformity: (i) early life injury: (*a*) causing direct bony distortion or depression; (*b*) causing hæmatoma of the septum with low-grade infection resulting in absorption of support and "falling in"; (ii) later life injury: (*a*) causing depression of the nasal bridge; (*b*) causing humping from bone displacement, or from subperiosteal reaction; (*c*) causing lateral deviation. He said that infinite variations occurred. In all cases of trauma some degree of septal damage or distortion was expected. Assessment must give consideration to (*a*) growth factors, (*b*) function and (*c*) appearance. Surgery directed towards improvement of the appearance must have a constant regard for growth and function. Post-traumatic deformities in children should be corrected, else continued growth increased the problems. Much-flattened noses in children should in many instances be built up in early life, even though a further operation might frequently be required later. It seemed that soft-tissue growth required the stimulus of tissue tension.

Dr. Officer Brown then said that the post-traumatic deformities of later life required corrections of widely varying extent. Depression of bone structure was often associated with widening of the maxillary processes. Some times a nice judgement was required to decide whether or not to perform an infracture. The appearance of widening was so much exaggerated by the flattening that decisions might be difficult, and sometimes they should be deferred till soft tissue was freed and an elevator could be inserted to raise the bridge. From a fairly considerable experience, his own view was that if any doubt existed, an infracture should be performed. At one time he had been disturbed about the possibility of infecting an insert under those conditions; in actual fact the planes of dissection need not and did not communicate. Many materials had been used, and many discarded, for the purpose of building up the dorsal line. His own firm preference had been for autogenous cancellous bone from the iliac crest. It was certain that complications were much more common with foreign materials. He had had no significant complications in the past 15 years using cancellous bone. Diced cartilage would probably always have its adherents, and of course autogenous freshly removed nasal cartilage was of great value for minor corrections. He himself had had to remove, on three occasions, vitallium inserts placed by another surgeon many years previously, and in the end ulcerating to the surface. In the human body, it seemed that such foreign materials, unless quite fixed, as they could be in the skull, would ultimately require removal. When tip support was required, he usually used a separate transverse strut of bone, which should be slim but firm. Subcortical bone was suitable. That admittedly resulted in a rigid columella. In spite of statements to the contrary, he had not found that a rigid columella caused any subjective discomfort or inconvenience.

Dr. Officer Brown then said that the lateral deformities could be most complex. When the condition had had its origin in fairly early life, and was of long standing, eccentric growth of bone and lateral cartilages might have produced gross asymmetry. Simple cases could be dealt with by bone refracture and forcible manipulation with Walsham forceps. For refracture he used the Safain type of offset saw of straight pattern. If small spurs remained high up, a small osteotome was used for their division. As a rule it was not necessary to remove any bone from the maxillary process. In long-standing or complicated cases, such a simple refracture would not be sufficient. Often there was a considerable dorsal hump, which would require resection, and that should be performed before the formal refracture. In such cases a full-scale internal incision was used, transfixing the septum below the septal cartilage and extending round on both sides in the intercartilaginous line. The skin over the whole dorsum of the nose above that line was raised. For hump resection again he preferred the offset straight saw. After refracture had been completed, the upper lateral cartilages were cut with scissors away from their septal attachments anteriorly. Further resection of septal cartilage was performed if required to provide a good dorsal line. Irregularities and redundancy in the upper lateral cartilage were corrected. Finally, if necessary, the lower lateral cartilages were everted from above after free separation from skin, and corrected or reduced. Often the bony septum was not materially displaced, and naturally the counsel of perfection was to mobilize the cartilaginous septum from its palatal attachment, when sometimes it could be readily moved into the middle line, later to be maintained there by sutures and packing. He had performed such relatively uncomplicated septal replacements for many years with varying end results, some good, some poor. However, more often the septal deformity was of more complex character, and it had been his constant practice to obtain the assistance of an ear, nose and throat specialist to deal with such problems. At one time it had been made a separate operation, usually before, sometimes after the plastic procedure. Now he preferred to ask the ear, nose and throat surgeon to deal with the septum as the first stage of a single operative procedure. The original incision was the full-scale transfixing one required for the later manœuvres; but extensive undercutting of dorsal skin was deferred in order to limit bleeding. Dr. Mackay would discuss in some detail the management of the septal problems, and would lay emphasis on the fact that they had come a long way from the time when a virtually total resection of the nasal septum was regarded as the sum total of treatment in such cases. Dr. Officer Brown said that it was surely evident that correct treatment envisaged in principle resection of the fixed bony septal obstruction, correction and centralization of the mobile cartilaginous septum, straightening and lining up of external bone structure, and the refinements of lateral cartilage and tip correction, shortening, etc., as required.

With regard to the treatment of alar cartilages, Dr. Officer Brown said that certain surgeons had advocated very radical procedures involving virtually complete separation from the host before reduction. That was in principle bad, involving as it did the replacement of such cartilage as an autogenous free graft. It was urged that at all times an epithelial lining be retained on one side at least to preserve natural blood supply and essential life. Lower lateral reduction was performed when required by the standard type of resection curving round the upper border and carried well anteriorly. Sometimes a secondary vertical resection represented by a triangle, base upwards in the dome region, was needed in addition, and was permissible. The upper attachments of the upper lateral cartilages and the caudal border of the lower lateral cartilages remained at all times inviolate.

Dr. Officer Brown said that he used few sutures, and thought that they were of little value. However, a well-placed suture might greatly assist in anchoring the cartilaginous septum in the middle line. He regarded packing as of some importance and maintained it for 12 days, but changed it about the third day and every few days thereafter. He used a firm and carefully moulded and reinforced plaster splint of butterfly type, and for the maintenace of its firmness, kept his patients in bed and largely recumbent for 12 days, which was irksome, but infinitely worth while. Women would accept such a régime with passive equanimity, men would not as a rule; consequently he had come to dislike dealing with the more difficult nasal reconstructions in males. Fortunately, as a rule, the male was content with a lesser improvement.

Dr. Officer Brown finally said that he used general anæsthesia in all cases. He was well aware that in Europe and in America for a number of reasons local anæsthesia was preferred. He was deeply grateful for the very high standard of anæsthesia which he had been able to obtain. Those who had been prepared to allow their patients the slightly added risks of hypotensive anæsthesia had worked under more pleasant operating conditions. He had not felt that the added risk was justifiable. Pre-operative nasal packing with cocaine and adrenaline was always used, with a little local infiltration of the tissue planes. Occasionally with that régime bleeding was persistent and troublesome, but never to an alarming extent. The usual post-operative tissue staining and œdema subsided in about 48 hours, so that he had not found it necessary to use the hyaluronidase preparation.

R. G. MACKAY (New South Wales) read a paper entitled "The Physiological Concept of Rhinoplasty". He began by pointing out that rhinoplasty was not, as a rule, performed primarily for cosmetic reasons, but that while many malformed noses functioned normally, there were many others which did not. In those it was impossible to restore normal function without correcting the anatomical displacements. The aim of all nasal surgery was fourfold, namely: (i) restoration of good function; (ii) restoration of the original anatomy as far as possible; (iii) prevention of post-operative changes, especially such as might lead to atrophic changes in the mucosa; (iv) rebuilding of the nose to a socially acceptable configuration.

Dr. Mackay then said that progress had been hindered by the lack of detailed physiological knowledge of nasal function, pointing out that in a recent editorial of a well-known physiology text-book the description of the respiratory system began at the larynx. Functionally, the nose was divided into three areas: (i) the vestibule. (ii) the external pyramid, (iii) the nasal cavity proper. The vestibule was not just a straight passage, but consisted of a series of baffles. Dr. Mackay described these and discussed the functions of the vestibular structures. He said that when pathological changes produced a relative alteration in the position, size or shape of the nasal orifice, functional difficulties tended to follow. Deformities of the lobule produced nasal discomfort due to misdirected air currents. As an example he cited the patient who, after an adequate submucous resection, still complained of obstruction, which was relieved when the tip of the nose was raised. He said that the most common cause of vestibular abnormality was injury, pointing out that the developing nasal cartilage had had more than its share of trauma by the time a child could remember events, and that any claim that a nose had never been injured was probably not really true. After injury, the traumatized cartilage might continue to grow normally, or growth might be retarded, or growth might be accelerated. The last-mentioned was quite common after injury of the septal cartilage, and might result in the co-called tension or bird nose, which caused the owner to complain of stuffiness.

Dr. Mackay then detailed the operative procedures for the relief of this and other deformities of the septal cartilage. He discussed Freer's operation of submucous resection, pointing out that it was unsatisfactory in several ways, in that it led to atrophic changes in the nose, even though they might take a long time to develop, and in certain conditions the anatomical result was not good. Various suggestions had been put forward to overcome those objections, but the procedure of septal reconstruction advocated by Fomon, Cottle and others appeared to be a big advance in dealing with the problem. Dr. Mackay described this procedure, pointing out that the basis of good septal reconstruction was to remove only what was necessary, and then to replace the septal components.

Dr. Mackay then discussed malformations of the lobule, which were a common sequel of trauma to this area, and their surgical correction. He next turned to consider the removal of a lump from the dorsum of the nose. This was often done primarily for cosmetic reasons, though a post-traumatic hump frequently played a part in producing a "tension" nose. The classical operation sometimes left a gap in the bony roof, leading to nasal irritation from external causes, as a result of the close approximation of the skin and nasal mucosa. That could be avoided by removing a strip from the septum and then lowering the hump of the nose by "down fracture".

Finally Dr. Mackay discussed the surgical treatment of atrophic rhinitis, a condition in which not only the mucosa was atrophic, but also the whole of the intranasal structures. In moderate cases the condition could be relieved by narrowing an abnormally wide nose, but in more severe degrees of the condition it was necessary to narrow the nasal cavity proper, by moving the lateral walls medially, and he explained the technique of doing that. Long-term follow-up suggested that the use of polythene sponge or other foreign materials for packing behind the transposed lateral walls was unsatisfactory, and that only bone or cartilage was satisfactory for that purpose.

Dr. Mackay concluded with a plea that, as a skilled plastic surgeon did not hesitate to deal with a nasal septum while performing a nasal plastic operation, so ear, nose and throat surgeons should acquire the facility of operating upon the bony and cartilaginous structures of the pyramid and manipulating them to a form which would restore adequate nasal function. The sense of well-being which normal nasal respiration gave the patient was well worth the time and effort expended.

F. ELLIS (New South Wales), in opening the discussion, said that Dr. Mackay had mentioned some of the history of the work. What had struck Dr. Ellis were the great gaps in the development of septal surgery. Little work had been done after the standardized submucous resection of Freer and Killian in 1905. In fact, the operations were described in the same issue of one of the journals of that period. To many surgeons today that was still their corrective operation for mechanical obstruction to the nasal airways, no matter what the rest of the nose was like. Some had adapted the Metzenbaum principle established in 1929 and had given it various names. In more recent times the teachings of Fomon, Cottle and Safian had begun to have an effect. It was impossible to divorce the functional from the æsthetic in any form of surgery of the exterior parts of the body. In ear, nose and throat

work it was common for the patient to complain of the functional disability primarily. Thus, reconstruction of the pyramid must go with the septal reconstruction in an increasingly large number of patients. Standard resection was no longer acceptable to a lot of surgeons. It had too many complications, for example, atrophy, dorsal saddling, perforations, adhesions, flapping, retracted columella, drooping of the tip, secondary widening and ballooning of the upper lateral cartilages. Many of those complications did not become apparent until long after the patient was discharged from the surgeon's initial care. Dr. Ellis said that it was obvious that a depressed dorsum or a deviated nose could not function as well as a straight normal-sized nose. Dr. Mackay had referred to the ethnic origin of the nose and said that that brought up the wide nose of the Negroid type; that type of nose, with its horizontal instead of vertical nostril was unsuitable both functionally and æsthetically on a white person. It was built for warmer climates, and so did not give as much trouble in temperate atmsopheres. Narrowing the wide nose was a difficult problem surgically and, as Dr. Ellis saw it, involved all parts, bone, cartilages and septum, and even the anterior nasal spine. The nose was a very old organ phylogenetically, and it was capable of functioning reasonably well, despite many handicaps, disabilities and submucous resections; but if its valves were not functioning as set out by Dr. Mackay, then it would be a sick nose, no matter how wide the airways appeared to be. With regard to the contentious question of valves, Dr. Ellis said a careful look into the anterior part of a normal functioning nose would show an anatomical structure so beautifully fashioned that it must play a part in respiration. He referred to the delicate way in which the lower end of the upper lateral cartilage lay just off the septum, forming the angle of 10° that Dr. Mackay had spoken of. It was possible to demonstrate its function by means of a manometer introduced into the opposite nostril and to measure the pressure levels of inspiration and expiration. If it was deformed, the respiratory pressures failed.

Turning to Dr. Officer Brown's paper, Dr. Ellis said that he liked the way Dr. Brown distinguished between early life injury and later life injury. Dr. Mackay had also mentioned that. Dr. Ellis said that he had no actual figures, but it was obvious to him that there were a majority of septal deviations and infections over the left side, and he would suggest that those should be watched for during ear, nose and throat practice. With regard to the question of why it was to the left side, he wondered if it was due to the frequency of the left occipito-anterior position of the unborn child. He agreed about building up the dorsal saddling in children at the earliest opportunity, as it then gave a nose to work on later. He would like to ask Dr. Brown what material he used for that, as a young child had no bone in the iliac crest, but only cartilage.

Dr. Ellis said that he would like both speakers to tell him how to prevent a deviated nose corrected by surgery from resuming its deviated position a few weeks after operation. He agreed that proper incisions and uncovering of the dorsum were prerequisites to any rhinoplasty. He agreed also about the inviolate status of the upper lateral cartilage attachment to the nasal bone. Commenting on the atrophic rhinitis operation, he said that if it was meticulously carried out extranasally, it could be a most useful adjunct to surgery. These were problem cases. He had operated on only two such cases, and in one the result was surprisingly successful. In conclusion, Dr. Ellis urged more ear, nose and throat surgeons to interest themselves in the subject under discussion and said that he would like to thank the plastic surgeons for the great help they had given to the ear, nose and throat surgeons in the past. It was his wish that that help might continue.

T. O'DONNELL (New South Wales) asked the speakers what material they used in the saddle nose in children, and at what age they operated. He had been using polythene.

V. BULTEAU (New South Wales) discussed the question of selection of cases. He said that overseas surgeons were prepared to reoperate on patients frequently. The patient often presented a psychological problem rather than a true plastic problem. He also referred to the problem of the treatment of very young children with fracture of the nose.

A. S. DE B. COCKS (South Australia) referred to the use of the push-back operation and asked how the dorsal line became modified.

C. CANTOR (Victoria) said that the nose must be considered as a part of the whole face. With regard to atrophic rhinitis, he had tried narrowing operations and other procedures but now felt that toilet and hormonal sprays were better than plastic surgery.

Dr. Officer Brown, in reply, said that for operations on young children he used cancellous bone from the crest of the ilium. He disliked plastic materials, even though they seemed suitable in young children. He said that reoperation was an admission of failure. He thought that for record purposes casts were of no value but photographic records were of great value.

Dr. Mackay, in reply, said that treatment of the valve system rather than the septum was the answer in many cases. The nasal dorsum could be built up locally after the push-down operation.

The Treatment of Œsophageal Strictures with Special Reference to the Mole Technique.

LINDSAY P. GRAY (Western Australia) read a paper on "The Treatment of Œsophageal Strictures with Special Reference to the Mole Technique". He said that the treatment of œsophageal strictures could be of four different types. (i) Treatment might be by diet, with soft, "vitamized" foods. (ii) Treatment might be by the use of indwelling, flexible, hollow tubes—(*a*) a polythene nasal tube or (*b*) Souttar's tube. (iii) Treatment might be by dilatation. That might be carried out through the mouth, blindly, or over a swallowed thread as a guide, or via an œsophagoscope. Dilatation might also be carried out through a gastrostomy, either with the retrograde passing of Tucker bougies or bobbins, or by the mole technique. (iv) Treatment might also be surgical—(*a*) by local excision or (*b*) by an anastomosis and short-circuit operation.

Dr. Gray discussed the methods and showed examples in a series of slides. A coloured 16-millimetre cinematographic film with sound track was then shown demonstrating the mole technique. Dr. Gray said that that technique entailed the pulling down to the stricture of hollow, cone-shaped dilators or moles. The thread tied to the mole was brought out of a gastrostomy and tied to elastic attached to the lower part of the abdomen. That elastic exerted continuous gentle traction on the mole, thus dilating the stricture. The results of treatment of six patients were presented; four had strictures following caustic soda burns, one reflux œsophagitis and hiatus hernia, and one a stricture following repair of a tracheo-œsophageal fistula. Dr. Gray said that the combined teamwork of surgeon, pædiatrician and otolaryngologist was required to give the best results. For dilatation to be efficient it should fulfil five requirements. (i) It should be gentle, to prevent local tissue reaction. (ii) It should act for as long as possible, to stretch the fibrous tissue. (iii) It should over-dilate the stricture, to allow for the inevitable fibrous tissue contraction later. (iv) It should be safe—the risk of perforation had to be minimal. (v) It should be free from psychological trauma; that was particularly applicable to children.

Deafness.

G. C. HALLIDAY (New South Wales) read a paper entitled "The Present-Day Surgical Treatment of Deafness". After referring briefly to the importance of certain basic principles of treatment which had been known for many years, he said that in his paper he wished to discuss the spectacular advances of the past 40 years, in relation

to deafness due to otosclerosis, deafness associated with perforations of the tympanic membrane, and deafness resulting from chronic middle ear infections. He first outlined some physiological and anatomical considerations. Sound waves reached the inner ear by two routes, one by the medium of the ossicular chain, which transferred them to the perilymph through the footplate of the stapes in the oval window, the other through the air of the middle ear space, setting in vibration the membrane of the round window. The two routes were mutually antagonistic, and it had been shown the the acuity of hearing was increased by placing an impedence in the round window, However, as fluid was incompressible, two functioning windows were imperative for movement of the perilymph. Obstruction of the Eustachian tube caused deafness by partial or complete obliteration of the middle ear space. So for normal physiological hearing it was necessary to have: (*a*) a patent Eustachian tube, (*b*) an intact tympanic membrane and functioning ossicular chain, (*c*) a normal air-containing middle ear space, (*d*) two functioning windows with a difference potential to the reception of the sound pressures, (*e*) normal auditory receptors.

Dr. Halliday then gave detailed measurements of the footplate of the stapes and of some inner ear structures. He said that before attempting such procedures as mobilization of the stapes it was necessary to spend much time practising the operation in the post-mortem room. He admitted that he had not infrequently failed to mobilize the footplate during a fenestration operation. Dr. Halliday then outlined the history of the recognition of otosclerosis, and of the various attempts at operative cure. It was claimed that the association of deafness with ankylosis of the footplate was known in the 18th century, but the fact was first firmly established by Joseph Toynbee in 1841. An operation to improve hearing by attempting to mobilize the stapes was first described in 1876; but in spite of various subsequent modifications, it remained for Lempert to achieve satisfactory results by perfecting the present operation of fenestration. Dr. Halliday also discussed a new procedure recently introduced by Samuel Rosen for mobilizing the ankylosed stapes, thus restoring a functioning ossicular chain. He doubted whether fenestration of the footplate itself would give permanent improvement.

Dr. Halliday briefly discussed myringoplasty, for repair of perforations where there was no middle ear infection, and stated that closure of the perforation greatly enhanced hearing, tended to prevent recurrent attacks of *otitis media*, and in many cases enabled the patient to swim again. Turning to the operation of tympanoplasty, pioneered by Zolner and Wulstein, he said that he considered their success was due to three vital factors—namely, their recognition of the concepts of normal physiological hearing, the greatly improved vision made possible by the Zeiss operating microscope, and the availability of modern antibiotics. There were a number of variations both in the lesions encountered and in the techniques adopted, but there were four main groups. In the first an intact ossicular chain was associated with active epitympanic disease. In those cases all diseased tissue was removed through an opening into the attic antrum, which was then covered with a full thickness skin graft after cushioning the exposed parts of the ossicles with gelatin foam, so as to maintain a space wherein the ossicles could continue to function. In the second group there was an interruption of the ossicular chain, usually due to necrosis of parts of the incus and malleus, but leaving an intact stapes with a movable footplate. In those cases an extensive radical mastoidectomy was performed, the incus and malleus were removed, and the tympanic membrane and contiguous meatal walls were prepared for a skin graft, which was again placed over sterile gelatine foam in such a way that it abutted on the head of the stapes. In that way a space was enclosed, into which the Eustachian tube, oval window and round window opened, and in which the stapes served as a columella. Dr. Halliday recalled that in reptiles and birds the tympanic membrane was connected to the oval window by a simple columella only. The operation resulted in a degree of hearing only 25 decibels short of normal, thus representing the effect of the loss of the ossicular chain component of hearing. In the third group the bulk of the tympanic membrane was missing, with destruction of the ossicles except for the footplate of the stapes. In those cases sound pressures impinged equally on both the round and the oval window, and an operation had been devised to overcome that. It aimed at partitioning off a space into which the Eustachian tube and round window opened, while leaving the oval window in direct communication with the air in the outer ear. That varied the potential of sound pressure at the two windows, so that an improvement in hearing might be anticipated. Finally, in three cases, in addition to extensive middle ear disease, the footplate of the stapes was found to be ankylosed. In those cases a fenestration of the lateral semicircular canal could be performed, and the skin flaps were adapted to cover that as well.

In conclusion Dr. Halliday said that the operations were tedious and time-consuming, but that, in carefully selected cases, good results might be anticipated in a large percentage of cases.

Psychological Aspects of Deafness.

E. L. SUSMAN (New South Wales) read a paper entitled "Some Psychological Aspects of Deafness", in which he drew attention to the different effect on the subject of blindness and deafness. The blind person tended to be clothed in the beautiful garments of sweetness, humility, resignation and courage. The deaf patient was often waspish, arrogant, petulant and yet timorous. The blind enjoyed each others' company and that of normal people. The deaf rapidly became lone wolves, secretive and introverted. The difference depended to a very large extent on the fact that man was a herd animal, and that deafness by its very nature cut the subject off from the herd. The blind tended to belittle and discount their disability; they developed remarkable compensatory mechanisms along the lines of hearing, touch and taste. In the deaf, the potentialities for the compensatory patterns were few. Obstructionist tactics were used by many deaf people when attempts were made to help them. It was permitted to make jokes about the deaf; to do so about the blind was regarded as an unforgivable error in taste. Dr. Susman went on to indicate some of the results of being excluded from all conversation, which ultimately included loss of judgement resulting in loss of confidence, so that the deaf man finally refused to attempt even the minor matters of life and began the stage of withdrawal, disappearing into his own world of fantasy. The stage of stone deafness to many people came as a blessed relief—the long struggle was over. Dr. Susman finally urged on those present the compelling need for some form of rehabilitation for the deaf, which was as yet entirely lacking.

Section of Paediatrics.

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Thirty Years of Juvenile Rheumatism.

LAURENCE HUGHES (New South Wales) took as the subject of his presidential address "Thirty Years of Juvenile Rheumatism", in which he traced the advances made from the middle 1920's to the present day, with special reference to treatment. He said that the second decade, which included the first half of the 1940's, covered a period of remarkable therapeutic achievement, with the introduction of the sulphonamides and the growing knowledge of the role of the streptococcus in ætiology. Then came the introduction of penicillin. During the first two decades, as well as a search for and treatment of the infective factor, much attention had been paid to possible constitutional and socio-economic factors relating to the patients themselves. During the third decade the most important single happening was the discovery of cortisone in 1949. Although its use in therapy had been disappointing, the full story of cortisone and allied hormones was possibly yet to be told. Dr. Hughes went on to say that there was little doubt that the most important individual events of recent times had been the proof of the association of preceding streptococcal infection with the subsequent onset of acute rheumatism and the discovery of an antibiotic that was lethal to that infection. Penicillin therapy at the onset of an attack or a recrudescence had undoubtedly been largely responsible for the decline in the incidence of juvenile rheumatism in recent years. However, streptococcal infections were common in childhood, and acute rheumatism was comparatively rare. Some other factor or factors, as yet unknown, probably in the patients themselves, must play a part in the ætiology. At the present time an allergic factor in some way associated with the group A hæmolytic streptococcus was most widely favoured. That presupposed an antigen and antibody, at present entirely hypothetical; so was the suggestion that tissue protein altered by streptococcal infection was antigenic. As in other types of infection, there was considerable evidence of genetic susceptibility to rheumatism. Socio-economic factors still deserved attention. Dr. Hughes said that in spite of some evidence to the contrary he still thought that progressive improvement in social conditions had contributed to the decline in incidence of juvenile rheumatism. The early detection of the insidious or subclinical form of the disease was a difficult problem. In his experience, that type of rheumatic infection had been common. Children who presented symptoms of vague ill-health and minor symptoms of rheumatic infection should be regularly examined; they were no doubt the children who in later life presented for the first time with rheumatic carditis, and a careful history failed to reveal any indication of a previous acute attack. Dr. Hughes said in conclusion that although there had been a definite decline in the incidence of juvenile rheumatism for several years, it could not be assumed that that decline would continue. He made a plea for the full use of the knowledge already gained in regard to the infective factor by adequate penicillin therapy at the onset of an acute attack, and an adequately supervised prophylactic course of penicillin or sulphonamides at hospital, clinic or home for the subsequent five years.

Failure to Thrive.

N. S. CHALK (Queensland) presented a paper entitled "Failure to Thrive", which was read for him in his absence by Dr. Felix Arden. It was stated that the symptoms and signs of the condition were failure to gain, hypotonia, apathy, constipation, deterioration of the condition of the hair, loss of peripheral vasomotor tone, anæmia, specific nutritional defects, severe intercurrent infections and wide fluctuations in daily weight. Whatever the cause of the condition, the signs were the same. The causes of failure to thrive were listed as failure of intake, failure of digestion, failure of absorption, failure of utilization, excessive demands for nutrients, excessive losses of nutrients, and miscellaneous. Each cause was discussed in some detail. Next a scheme for use by the general practitioner in investigating such children was outlined; this comprised an adequate history and a meticulous physical examination with a number of investigations including the following: urine examination, blood examination, investigation of the stools (amongst other things for evidence of helminth infestation), a glucose tolerance test, examination of the duodenal juice and fæces for tryptic activity, a sweat chloride test, a Mantoux test, and X-ray examinations when indicated. The case was finally described of a child whose sole disability appeared to be his inability to deal with complex carbohydrates.

ELIZABETH TURNER (Victoria), in opening the discussion, said that in her experience cases of carbohydrate intolerance of the severity described in Dr. Chalk's paper were uncommon; but children who responded to stress, whether physical, such as infections of the respiratory tract, or emotional, by hyperperistalsis and temporary inhibition of digestive enzymatic function, were exceedingly common. She had been most interested to note that Dr. Chalk's patient was an adopted child. She had said on previous occasions that she believed that digestive disorders might be more common in adopted children. It interested her that in so large a series of cases as that Dr. Chalk had described, there had not been more of what she would call the embryopathic type of failure to thrive, which she thought was not uncommon. By that title she meant the little runt who, though often born at full term, was undersized and remained so in spite of strenuous therapy. Some of those cases might be of genetic origin. A number seemed to be due to intrauterine malnutrition, sometimes the result of local uterine conditions but more frequently to deficient maternal nutrition for one reason or another during the pregnancy. Treatment of those patients proved to be most unrewarding.

W. B. MACDONALD (Victoria) said that he thought an opportunity had been lost. Failure to thrive differed in its nature in different parts of Australia and in Australia from other parts of the world, and it would have been most interesting to have the precise figures of the number of different causes that had been discovered in Queensland.

KATE CAMPBELL (Victoria) said that there was a group of infants who might be termed "milk-haters". They disliked cow's milk in any form—fresh, dried or evaporated—and also goat's milk. There appeared to be an obvious ill effect associated with its ingestion, and no sensitivity. If the milk was mixed with solid or semi-solid food or was disguised in soup, etc., it could be taken. Non-milk foods were taken with relish and avidity. Even though educational diet and three meals a day were instituted earlier than usual, without the usual amount of milk in the diet, growth and weight gain were suboptimal.

S. E. L. STENING (New South Wales) said that he was surprised that no mention had been made of milk allergy, respiratory tract allergy, gastro-intestinal allergy or skin allergy in relation to the group of children evidencing

failure to thrive. He would like to hear about them in the discussion.

MOSTYN POWELL (Victoria) said that he would like the concept of failure to thrive limited to those cases in which one could find absolutely nothing amiss on physical examination. Such a group would, however, include the child with a chronic subdural hæmatoma, for in that condition at times no abnormal physical signs could be obtained. He had also found what could be called primary failure to thrive among children who were mildly anæmic; their anæmia did not respond to iron, but if they were given blood transfusions, both the anæmia and the poor growth would be corrected.

H. L. DAVIS (New South Wales) said that in his general practice he saw failure to thrive occurring in small children for no reason whatsoever. Many of those children eventually recovered. He thought it was not uncommon for children to have such a period at one stage or another during their early childhood, with spontaneous improvement later.

H. S. PATTERSON (Queensland) said that he thought that Dr. Chalk's baby with the carbohydrate intolerance might have done well if fed on soya bean milk.

S. F. MCCULLAGH (New Guinea) said that in his area they saw many extremely emaciated and marasmic infants coming from the high grass country where malnutrition was common. He had noted that they sometimes failed to respond to treatment for considerable periods of time, and then quite suddenly began to improve.

Dr. Arden, replying to Dr. McCullagh on behalf of Dr. Chalk, said that similar cases to his were met with in Queensland among children whose parents lived under very poor conditions on the outskirts of the city. He also had noticed that even under the best possible feeding and general hospital care, a considerable time elapsed before they began to make headway. He suspected that it was due to the fact that during the period of malnutrition they had sustained liver damage. In reply to Dr. Davis, Dr. Arden said that he thought the concept of marasmus, indicating failure to thrive for no apparent reason, should be abolished. There must always be a reason for failure to thrive, and in his experience at the Brisbane Children's Hospital the longer and the more patiently one searched for the cause, the more often one found it. When no other cause could be discovered it usually proved to be some obscure biochemical or metabolic defect.

Dr. Hughes, from the chair, said that he agreed that allergic diseases were an important cause of failure to thrive in babies.

The Nephrotic Syndrome.

R. H. VINES (New South Wales) read a paper entitled "Some Aspects of the Nephrotic Syndrome in Children", based on an examination of the histories of 68 affected children admitted to the Royal Alexandra Hospital for Children between 1947 and 1954, with the results of a follow-up study of the survivors. Dr. Vines said that the majority of the children were aged under three years at the onset of the disorder, the highest incidence being in the second year of life. In one child the disease followed a bee sting, and in another it occurred during treatment with troxidone. Eleven children found to be excreting mercury in their urine had a significantly better prognosis than the remainder of the group studied; that observation suggested an ætiological role for mercury. In the majority of the children an infection closely preceded the onset of the condition. Leucocytosis and neutrophilia had been found in the majority of the patients, and eosinophilia in about half of them. A statistically significant association was shown to exist between the presence of ascites on admission to hospital in the initial episode and a fatal outcome, and between azotæmia and a fatal outcome. Approximately half the children appeared to have recovered completely, for although 19 had died, 32 were still alive, and of those only four were known to have albuminuria. Seventeen remained untraced. Dr. Vines said in conclusion that no evidence appeared to have been obtained to refute the concept that the nephrotic syndrome was usually due to a single distinct disease entity not preceded by acute glomerulonephritis.

F. ARDEN (Queensland), in opening the discussion, congratulated Dr. Vines on the way in which he had handled the big job of analysing so many cases. He said that he agreed with Dr. Vines's general contention that nephrosis was usually a disease of unknown ætiology, unrelated to nephritis. It was of interest that in his experience in Brisbane over many years, he had known only one case of nephrosis to follow typical acute nephritis. The patient was a child who had glomerular nephritis, after which the tonsils were removed for gross infection. A few days later the child became œdematous, and developed the characteristic symptoms of nephrosis, of which he eventually died. Dr. Arden said that he had also seen in Brisbane only one example of nephrosis occurring in two members of the same family. Those children, about three years apart in age, developed nephrosis within a few weeks of one another. Both were still suffering from it. Dr. Arden suggested that it might be interesting to compare nephrosis with infantile eczema. Although the two diseases sounded so different, they did share many features in common. Both tended to be confined to a particular age group. Both diseases arose spontaneously in small children who had previously been in good health. In both, a characteristic pathological feature was increased permeability of capillaries in certain portions of the body. Both showed the same tendency to temporary relief during the course of, or immediately after, an acute febrile illness, with later relapse. In both there was a tendency to eosinophilia, and in both there was a temporary and sometimes unpredictable response to ACTH and corticoids. Dr. Arden said that he would like to ask Dr. Vines what was the significance of the globulin changes that were regularly seen in electrophoresis of the plasma proteins. It seemed to be a more or less constant finding that the alpha-2 globulin was increased, and that the gamma globulin was much reduced. Dr. Arden asked whether there was any explanation for that. Secondly, Dr. Arden asked Dr. Vines if he knew whether the condition of nephrosis, other than the temporary œdema of hypoproteinæmia, could be reproduced experimentally in animals. Thirdly, Dr. Arden asked whether Dr. Vines had seen in his cases the fluctuating albuminuria that appeared to characterize the Queensland cases. It was often noticed that a child might be passing urine "solid" with albumin one day, and within a day or two passing urine containing only a trace of albumin.

KATE CAMPBELL (Victoria) said that the role of mercury in nephrosis was suspected, but zinc had not so far come under suspicion. Infants who were treated for long periods with applications containing zinc would be found to excrete appreciable quantities in the urine for a long time after the application had ceased. In one case it was found eight months later. It was probably ingested when applied to the face or when the hands were contaminated with it and sucked. It might possibly be absorbed from raw surfaces or inhaled from dusting powders. The peak of the incidence of nephrosis in the second year could tally with that. Dr. Campbell suggested that the urine of affected infants, if shown not to contain mercury, might be investigated for zinc.

S. F. MCCULLAGH (New Guinea) said that nephrosis was quite common in his area of New Guinea in children aged from two to four years. It was said to be of malarial origin, but did not clear up when the malaria was cured. He asked whether Dr. Vines thought that malaria could in any way be a cause of nephrosis, and whether any benefit would follow its eradication.

MOSTYN POWELL (Victoria) said that he also had known a family in which two children suffered from nephrosis. One had since died, and the other was becoming hypertensive. He asked what was the significance of the bee stings.

D. HAMILTON (New South Wales) said that most people would agree nowadays that steroids had made a great difference to the outlook in nephrosis. He asked whether any of Dr. Vines's patients had been treated with steroids.

J. MATTHEWS (New Zealand) asked what investigations had been made into the proportion of normal children in that age group passing mercury in their urine in significant amounts.

MARCELINE LUCK (Queensland) asked whether Dr. Vines thought that the age at which a child contracted nephrosis had any relation to the prognosis. She said that she had recently studied 11 cases in Queensland, and had noticed that all the patients whose disease developed before the age of three years had died, and all of those whose disease had developed over the age of four years appeared to be well.

Dr. Vines, in reply, said that he did not know what the significance of the globulin changes was. He had observed them in his own patients. Experimental work in animals had produced a type of nephrotic syndrome brought about by the injection of anti-kidney serum into normal animals. Dr. Vines agreed that fluctuating albuminuria was quite common. Referring to the mortality from nephrosis, he said that although Dr. Arden had seemed depressed that the figures in Brisbane did not appear to be as good as those he himself had collected from Sydney, they also were surprised when they actually collected their figures to find that there was a recovery rate of over 50%. In reply to Dr. Campbell, Dr. Vines said that he had no experience of the excretion of zinc in the urine of such patients. He was interested to know that nephrosis was common in New Guinea, but he thought the ætiological position of malaria was very dubious. Indeed, malaria had been used as a treatment for the disease. To Dr. Powell, Dr. Vines said that other observers had noticed nephrosis developing after bee stings. In only 10 of the cases reported in his paper had the patients been treated with steroids, and they had had relatively small doses. Of those 10 patients, five had died. Referring to the excretion of mercury by normal children of the same age group, Dr. Vines said that nine out of 21 such children had been found to be excreting mercury in their urine. In reply to Dr. Luck's question, Dr. Vines said that it was usually found, particularly in Great Britain, that the younger children had the better prognosis. Perhaps that was due to their having a more benign form of nephrosis following ingestion of mercury.

Dr. Hughes, from the chair, said that he had always looked on nephrosis as a definite clinical entity most difficult to treat. Alternating albuminuria was in his experience also quite common. He himself had seen only one patient with nephrosis in New Guinea in a number of years.

Patent Ductus Arteriosus.

DOUGLAS H. COHEN (New South Wales) read a paper entitled "Patent Ductus Arteriosus". He said that patent ductus was one of the few congenital heart lesions that could usually be diagnosed on clinical signs alone—the presence of the typical Gibson continuous machinery murmur together with an obvious increase in the pulse pressure. There was not much heart enlargement as a rule, but often there was some increase in vascularity of the lung fields. The electrocardiogram was often within normal limits. No special tests were necessary as a rule to confirm the diagnosis. Cardiac catheter findings were useful on occasions when the diagnosis was in doubt. The diagnosis was usually clear cut. It might be necessary to exclude other lesions that gave rise to a continuous murmur. On the other hand, a patent ductus might be present in the absence of a typical murmur—for example, in infancy. Pulmonary hypertension might also be present. An infant in congestive cardiac failure in whom a patent ductus could not be excluded should be submitted to thoracotomy.

Discussing the indications for operation, Dr. Cohen said that all cases of uncomplicated patent ductus warranted operation. The ideal time was between the ages of two and three years. If congestive failure of any degree was present, every effort should be made to relieve it by medical means prior to operation. When pulmonary hypertension or other complications were present, operation should usually be advised. At operation, a vertical axillary approach was used up to the age of four years, after which a standard lateral thoracotomy through the bed of the fourth rib was preferred. The ductus was approached from behind the vagus nerve. Ligation with thick plaited silk ligatures was preferred to division of the ductus in most cases, and had proved completely satisfactory, with no evidence of recurrence in any case. The management of the recurrent ductus constituted a special problem.

Dr. Cohen described in detail the post-operative management, and said that his series comprised 60 patients aged from one month to twelve years, operated on in the last two years. In 11 patients under the age of two years some element of failure was present. There were no post-operative deaths and no evidence of recurrence. In only three cases was there any post-operative morbidity. Three cases of recurrent patency of the ductus had been dealt with, and the duct had remained closed. Seven patients with severe pulmonary hypertension associated with a patent ductus had been operated on, with one post-operative death. There had been several complicated cases, in which the patent ductus was associated with another lesion; they had been excluded from the series. There were 52 males and 18 females in the series—the usual sex distribution—and two familial groups. All patients had shown improvement after operation, in many cases to a marked degree.

STANLEY WILLIAMS (Victoria), in opening the discussion, said that he himself was completely sold on surgery in such cases; but if anyone present had not previously been so, Dr. Cohen's paper should have convinced them. The best that the physician could do was to steer patients to the surgeons. There were many problems still to be solved concerning the ætiology of the disease. It was obvious that most cases were not due to rubella. In the majority of cases there must be some genetic fault.

J. MATTHEWS (New Zealand) said that he was concerned with a small group, the babies who had a patent ductus, who were not thriving, but did not present the classical picture. Two such patients in his experience had both been investigated by cardiologists. At first it was thought that they were not suffering from patent ductus, and it was only when they were submitted to catheterization that it was proved that they were.

C. J. OFFICER BROWN (Victoria) congratulated Dr. Cohen on his paper. He said that he would like to join issue with him over the question of ligation or division of the ductus. He did not think that the former was the safer operation. He would have considered it more dangerous. He himself nearly always divided and sutured the ductus. He would certainly never let a resident medical officer ligate a ductus, but he might on occasions let a senior resident divide one. To him the risk seemed to be that it was very easy to cut a ductus with the ligature, and also one left a large amount of foreign material in the area of operation, and thus ran more risk of staphylococcal infection. Division and suture took a little longer, but with the proper clamps the risk was very small. That applied especially to children and people in the older age group, and to those who were hypertensive.

ROBERT SOUTHBY (Victoria) said that he supported Dr. Cohen's contention that if one was in doubt whether a baby had a patent ductus or not, one should ask the surgeon to have a look. He said that it was generally agreed that complications would ensue later if the ductus was not dealt with in childhood, but he wondered what statistics were available on that aspect.

P. DORNEY (Tasmania) asked whether there was any way of differentiating aorto-pulmonary septal defect from patent ductus without thoracotomy.

Dr. Cohen, in reply, said that he know no more than anyone else about the ætiology, but it was obviously genetic. It had occurred in twins, and there were cases in which it had occurred more than once in the same family, sometimes associated with other cardiac defects. It was not the only heart defect which could follow rubella. To Dr. Officer Brown, Dr. Cohen said that everyone's experience tended to be coloured by what they were doing themselves, and Dr. Brown dealt mainly with adolescents and adults. He himself would not dream of ligating a ductus in an adult, but he still thought that it was the best operation for small babies. It meant less handling and was a quicker operation; but with adults it was certainly wise to adhere to the division technique. In reply to Dr. Southby, Dr. Cohen said that the principle

should be, "If one cannot exclude a ductus, go in and look"—perhaps after a brief period of resuscitation from cardiac failure. For diagnosis one could not rely on the cardiac murmurs; but reliance had to be placed on the combination of peripheral pulses and failure to thrive. In regard to what happened later, he said that Maurice Campbell had followed a series, and had found, first, that spontaneous closure was very rare indeed beyond the age of one year, and secondly, that the finding of a patent ductus at autopsy was very rare in people who had died over the age of 45 years. Therefore it must be regarded as a lethal condition, killing in the 20 to 40 years age group. He said that although aorto-pulmonary septal defects did exist, he himself had yet to see one, and it must be very rare. He did not know how they could be identified before operation. If he found one at operation, he thought he would just close the chest and then reopen it under hypothermia, to repair it at a later date.

Dr. Powell, from the chair, said that it had been an excellent discussion. He thought that the surgery of patent *ductus arteriosus* was most fascinating and rewarding. He agreed that peripheral strong pulses were diagnostically of vast importance. He himself had seen patent *ductus arteriosus* in one of twin babies. At the age of seven months, the normal baby weighed 17 pounds, and the one with the patent ductus weighed only 11 pounds. Unfortunately that was a case in which delay in the operation led to the child's contracting staphylococcal pneumonia, from which he died. Dr. Powell reminded those present that Robert Munro in 1907, in Boston, had first suggested surgical ligation of the patent ductus, as a result of his finding the condition at a post-mortem examination on a girl aged 19 years. It was singularly appropriate that the first operation had eventually been performed by Dr. Gross in the same city.

The Surgical Significance of Pulmonary Hypertension.

N. A. MYERS (Victoria) read a paper entitled "The Surgical Significance of Pulmonary Hypertension". He said that pulmonary hypertension existed when the blood pressure in the pulmonary circulation was above 30/15 millimetres of mercury. A physiological classification of the causes of pulmonary hypertension was the most satisfactory, and enabled four types to be recognized—passive, obstructive, hyperkinetic and vasoconstrictive. The hyperkinetic type was the most significant in pædiatric surgical practice, as it frequently accompanied those congenital cardiac malformations which produced an increased pulmonary blood flow. Secondary changes in the pulmonary blood vessels led to the addition of obstructive factors. Dr. Myers finally said that the surgical significance of pulmonary hypertension was diagnostic, therapeutic and prognostic. Every attempt should be made to correlate its degree with the underlying anatomical defect by means of pre-operative investigation, operative biopsies and necropsy studies.

L. W. KNIGHT (Tasmania), in opening the discussion, said that pathology could not be put up in boxes, and although one might attempt a simple classification, the various types of pulmonary hypertension tended to overlap with one another. He had noticed that, although changes in the pulmonary vessels developed in mitral valvular disease with hypertension, after operation, when the pulmonary pressure fell, the vessel changes tended to disappear spontaneously. He thought that emphasis must be placed upon the right ventricle rather than upon the pulmonary vessels, because if the right ventricle was failing, no surgery would succeed. The treatment of pulmonary hypertension therefore resolved itself into early surgery; he thought the earlier the better.

A. E. DOYLE (Victoria) said that he considered the subject to be most difficult and complicated, and he thought Paul Wood's classification over-simplified. He himself did not think that passive hypertension was really a clinical entity. Venous pressure was not always equal throughout the lung. Even with quite low pulmonary artery pressures, in the vicinity of 30 to 40 millimetres of mercury, one could demonstrate peripheral vasoconstriction at the lung bases. He questioned whether there was any relationship between a high pulmonary flow and the subsequent development of pulmonary vasoconstriction. If the development of pulmonary vasoconstriction did not necessarily follow, the argument for early operation largely disappeared, and he did not consider that there was any strong evidence for it. Dr. Doyle considered that there was always some vasoconstriction when high flow was accompanied by high pulmonary artery pressure. Even so, he did not know whether that was progressive. He thought that Paul Wood's view that high pulmonary resistance was present at birth or shortly afterwards was probably correct. Dr. Myers had described responsiveness of the pulmonary arterial tree to vasodilators injected down the catheter, but he himself did not consider that was a useful criterion for selecting patients for operation.

C. J. OFFICER BROWN (Victoria) agreed that the subject was a most important one. It was very hard to determine whether pulmonary hypertension developed from a high flow or whether it was an inherent condition. He quoted one of his own cases, that of a child with Fallot's tetralogy, who had been subjected to a Blalock operation, and did well for a number of years. However, after six or seven years there was a sudden deterioration with increase in heart size, and the child went progressively downhill. By that time his continuous murmur had disappeared altogether. The question was, had the shunt gone, or had pulmonary hypertension developed? It was determined, by direct estimation of the pulmonary artery pressure by needle technique, that the pressure in the pulmonary artery was very high indeed—100 to 120 millimetres of mercury. That was a case which convinced him that pulmonary hypertension had developed as a secondary thing, and was not an inherent quality.

PETER JONES (Victoria) said that he was concerned with the relationship between pulmonary hypertension and congenital heart defects needing operation. Dr. Paul Adams, of Minneapolis, had said that in 15% to 20% of the cases of ventricular septal defect seen in the first two years of life, the condition was already inoperable from that cause.

D. COHEN (New South Wales) said that it was his habit to take a lingular biopsy for study of the pulmonary vessels during the course of any heart operation in which severe pulmonary hypertension was suspected; but in no case had any abnormality of the vessels been shown. Apparently the changes recorded, largely in adult cases, required many years for their production. He had not seen pulmonary hypertension develop in a previously normotensive child as it undoubtedly did in adults. It was always present when the child was first seen, even in infancy. He considered that any child with pulmonary hypertension with a large left-to-right shunt must be fully investigated to exclude the very large patent ductus. He himself would operate on all children with patent *ductus arteriosus*, even though the pulmonary tension was over 80 millimetres of mercury. He would not consider them inoperable on the grounds of pulmonary hypertension alone. It had been his experience that in such cases the pulmonary tension tended to return to normal after operation. It had been found helpful to keep the patients in oxygen tents for one week after operation to guard against right heart failure.

Dr. Myers, in reply, said that he would like to join issue with Dr. Doyle about right ventricular strain being more important than pulmonary vascular strain. He agreed that the subject was a most difficult one, and thought that they were all still in the stage of accumulating knowledge about it, particularly about the relations of surgery to pulmonary hypertension. He thought that in time concepts previously held might have to be altered. With regard to the closure of a reversing ductus, he quoted Brock's statement that if on the operating table the pulmonary artery pressure fell when the ductus was occluded, then operation was safe, but said that in his experience that was not always so. One biopsy taken by Gibson at Great Ormond Street had shown a good degree of correlation between the state of the arterioles and the pulmonary pressure. Perhaps the

important thing was the pulmonary diastolic pressure, as that was a measure of the peripheral resistance. Referring to the first sentence of his reply to Dr. Doyle, Dr. Myers amplified his statement by saying that it was sometimes feasible to narrow the pulmonary artery by partial ligation, so throwing more strain on the right ventricle, but relieving the pulmonary circulation considerably.

Neonatal Cyanosis.

J. D. MATTHEWS (New Zealand), in a paper on "Neonatal Cyanosis", said that cyanosis was probably the most frequent alarming symptom prompting the nurse to call the doctor in the neonatal period. He discussed a table of differential diagnosis and went on to say that, apart from two relatively innocent types of cyanosis—namely, peripheral cyanosis and traumatic cyanosis—the main causes were respiratory, cerebral or cardiac. Of those the first was usually relieved by oxygen, the second sometimes and the third generally not at all. Respiratory factors were those most frequently responsible for the blueness. Especially where the airway was obstructed, intragastric administration of oxygen was valuable in relieving the cyanosis while the site of the obstruction was being sought and removed. "Lethidrone" given into the cord immediately after birth prevented serious depression of the infant's respiratory centre when the mother had been given morphine, its derivatives or pethidine within a few hours of delivery.

Dr. Matthews said that because atelectasis was the most frequent abnormality found in the affected infants, especially the premature babies, much attention was being directed to it; that was resulting in the separation off of certain groups which were better understood and for which special treatment was indicated. He discussed the separation off of the group of babies with "hyaline membrane syndrome" and went on to say that in atelectasis associated with gross indrawing of the anterior chest wall it was worth while fixing the sternum by traction on a skin clip attached in the region of the xiphisternum. Nursing in an "Alevaire" saturated mist had been found in his experience to have revolutionized the prognosis of babies with atelectasis due to intrauterine inhalation of excessive amounts of meconium. Pneumonia, primary or secondary, was often missed unless thought of and looked for radiologically.

Dr. Matthews gave special emphasis to congenital abnormalities, such as œsophageal atresia and gross diaphragmatic hernia, because of the influence of the earliest possible diagnosis on the result of surgical correction, and to certain other conditions in which early accurate diagnosis was necessary to enable specific life-saving measures to be taken. They included air in the chest under tension and early congestive heart failure due to congenital heart disease. He said that the latter often presented insidiously with a picture suggestive of infection. Early and adequate digitalization could be life-saving and so gain time for determination of the exact lesion which might, if aortic coarctation, be capable of surgical correction. Attention was drawn to the importance of always having oxygen readily available and to the value of urgent radiological investigation whenever the cause of the cyanosis was not easily determined.

KATE CAMPBELL (Victoria), in opening the discussion, said that she thought Dr. Matthews had been wise at the outset to refer to innocent cyanosis. To detect true cyanosis, she found it helpful to study the colour of the tongue, which in the newborn baby always told the truth. If the tongue was pink, the body colour could be disregarded. Dr. Campbell said that she thought that plethora in the newborn was not uncommon. At that stage there was more than five grammes *per centum* of reduced hæmoglobin, but the infant was well oxygenated. The condition was sometimes seen if the mother had been given ergometrine before the placenta had separated. It might be seen also in the first twin, if there was a communication with the circulation of the second twin. If the cord was not tied when the umbilical arteries of the first twin ceased pulsating, blood would enter from the placenta, but would not leave the baby. That baby became plethoric, and the twin in return might be partially exsanguinated. Dr. Campbell went on to say that Dr. Matthews had referred to the necessity for early recognition of œsophageal obstruction. It was helpful if in every case of hydramnios a catheter was passed into the stomach at birth. To prevent error in the case in which the catheter might curl up in the proximal œsophageal pouch, the reaction of the aspirated fluid was tested. If it was acid, the catheter had been in the stomach.

Discussing hyaline membrane atelectasis, Dr. Campbell said that it was attracting much attention, as Dr. Matthews had stated. Since attention had been directed to adequate aspiration of the baby's respiratory passages before he breathed, and everything possible had been done to minimize hypoxæmia during labour, the incidence had greatly decreased. They had given up the use of "Alevaire" in that condition. They gave the infant all the oxygen he appeared to need to maintain his colour, and employed sternal traction in a case of any severity. They found the latter procedure beneficial, often dramatically so.

Dr. Campbell then said that she thought there was a group of infants who were cyanosed from intrauterine pneumonia, due to a transplacental viral infection from the mother who had suffered from a respiratory infection in the latter weeks of pregnancy. Her experience of bronchoscopic suction in newborn infants who had inhaled meconium had not been happy. She asked Dr. Matthews to give his results. Dr. Campbell finally said that she had been greatly interested to hear that lung cysts from staphylococcal pneumonia could be encountered on the second day of life, and asked Dr. Matthews to discuss them.

M. POWELL (Victoria) said that he had recently had the shattering experience of being asked to see a newborn baby who was very blue, but in no distress. The heart appeared to be normal, but he concluded that the child had some form of right-to-left shunt with no bruit. A week later he saw the baby again. However, his resident had warned him that something might be in store, having recently read an article in *The Lancet*, and, true enough, the baby was found to be suffering from methæmoglobinæmia.

W. B. MACDONALD (Victoria) asked what relationship existed between hyaline membrane disease and left heart failure. He wondered whether Dr. Matthews had used digitalis in that condition, and if so, with what results. He also wondered whether Dr. Matthews had had the experience of anticipating the disease by X-ray films taken immediately after birth.

Dr. Matthews, in reply, said that he had intended to convey that aspiration was performed from the trachea rather than from the bronchi. However, since the use of "Alevaire", it was his impression that babies who had apparently aspirated material into their respiratory tracts became normal in 18 hours. Aspiration was, of course, of no value in cases of hyaline membrane. He had yet to see a case of methæmoglobinæmia, although he was looking for one. He had no personal knowledge of the relationship between hyaline membrane disease and right heart failure; nor had he any idea of the cause of the hyaline membrane. Many theories had been advanced, some of which were plausible, but he thought that the true explanation had not yet been given. He did think, however, that ultimately there might be some vascular explanation for the exudate in the air sacs. He had tried to anticipate the condition by taking X-ray films of the chest. He recalled one baby, the child of a mother who had lost five babies, four of them in less than eight hours from atelectasis. That baby was delivered at 36 weeks by Cæsarean section, and serial X-ray films were taken. The earlier ones showed clear lungs, but eventually the condition developed and the baby died. In another case in which serial X-ray films were taken over an interval of 72 hours, he watched changes in the lung accompanied by collapse and cyanosis of the infant. That child had fortunately survived, and within the next four days the X-ray findings had returned to normal.

Steatorrhœa in Childhood.

CHARLOTTE ANDERSON (Victoria) read a paper entitled "Steatorrhœa in Childhood". She said that the term steatorrhœa was an ill-defined one, often used synonymously with other terms to embrace a number of diverse clinical entities, or merely as a description of a type of stool. In her paper she intended to apply it only to those cases in which there was an excess of fat in the fæces as determined by fat balance studies. The diagnosis was considered under the headings of clinical information and laboratory investigations. Dr. Anderson said that clinical diagnosis was always the best and most economical means of recognizing a disease, and in most cases of steatorrhœa it could be achieved with a minimum of relevant and confirmatory biochemical and other tests. The most important features were the macroscopic observation of oily matter like melted butter in the stool and the observation of numerous fat globules on microscopic examination. The former was a useful clinical point, especially if commented on by the mother. The latter was a useful and easy screening test. Fat globules were seen in conditions in which the digestion of fat was incomplete, such as fibrocystic disease of the pancreas, in conditions in which the passage of food through the gut was hurried, such as acute diarrhœa, or in the absence of bile, as in obstructive jaundice. Fat droplets were not usually seen in any numbers in cœliac disease, in which the digestion of fat was complete but absorption was impaired. Microscopic examination of the stool for fat was of most value in the group of babies and young children with resistant chest infection, who were suspected of suffering from fibrocystic disease of the pancreas. The biochemical demonstration of the presence of steatorrhœa in children could be carried out effectively only by a fat balance study lasting over a period of days. Single estimations of fat in dried stool were inaccurate. The presence of adequate pancreatic enzymes was best demonstrated by duodenal intubation; but with increasing knowledge of the clinical groups showing steatorrhœa, that investigation was being less frequently performed. Dr. Anderson then presented the findings relating to 169 patients referred during a period of five years. They resolved themselves into four main groups: (i) 32 patients with wheat gluten-induced cœliac disease; (ii) 72 patients with fibrocystic disease of the pancreas; (iii) 22 patients with steatorrhœa of varied ætiology; (iv) 43 patients not showing steatorrhœa. Dr. Anderson discussed each group and its implications in some detail. She said that from a study of those groups, clinical patterns emerged, and laboratory assistance became chiefly confirmatory.

R. WALL (Tasmania), in opening the discussion, said that Dr. Anderson had shown clearly the distinction between the two principal pathological entities causing steatorrhœa. He thought that he should perhaps mention the extreme sensitivity to gluten shown by some babies suffering from cœliac disease. Very small amounts of gluten might spoil the diet and produce symptoms. In one case in his experience, the administration of a very small amount of gluten on one occasion had produced severe illness. Dr. Wall asked Dr. Anderson for more details of the sweat test used in mucoviscidosis. He said that Dr. Anderson had shown clearly that the majority of cases could be diagnosed accurately. But for the general practitioner precise diagnosis did require special laboratory facilities not always available to him—for example, facilities for performing fat balance studies and for obtaining duodenal juice for enzyme estimation. General practitioners also saw some patients with many of the features, but not all, and had to decide about the inconvenience and expense of further investigation. Dr. Wall wondered what the solution of that problem was. Perhaps the clue lay in the history. If that was clear and reasonably straightforward, one could be pretty sure that the case was one of steatorrhœa, and that it was likely to be either cœliac disease or mucoviscidosis. If, on the other hand, the history was rather vague and atypical, it was usually found that tests did not confirm the diagnosis of steatorrhœa, and that the baby had some other general malabsorption condition. He wanted to make the point that if one delved deeply enough into the history, the necessity or otherwise for investigation became clearer.

M. POWELL (Victoria) asked what happened to cœliac patients in adult life.

Dr. Anderson, in reply, said that the plate test for increased sodium chloride in the sweat, though easy, was not particularly reliable. They had a better method in Victoria, though the test was more difficult to perform. She agreed entirely that a carefully taken history was most important, particularly in cases of cœliac disease. She did not like the grouping of all other conditions as malabsorption defects. Often other symptoms were shown, not necessarily due to faulty absorption. She was not yet able to answer about the outlook for treated cœliac disease in after life, as the treatment had not yet been in existence for a sufficient number of years. However, she could say that children with untreated cœliac disease retained their symptoms until later life. Dr. Anderson showed a slide in which such a child had been followed for 10 years, during which time there had been two relapses, one of them after a delay of six months, when gluten-containing foods were reintroduced into the diet.

Immunization in Pregnancy with Rh Hæmolytic Disease of the Newborn.

G. A. KELSALL (Western Australia) presented a paper, prepared by himself in conjunction with G. H. Vos and R. L. KIRK, entitled "The Occurrence of Episodes of Immunization in Pregnancy Associated with Rh Hæmolytic Disease of the Newborn". He said that antenatal antibody titrations had been carried out in their clinic at every available opportunity during the past seven years. It was found that immunization of the mother occurred as one or more episodes during the pregnancy, and that the resulting antibody titres might be of minor or of major magnitude. The prognosis for the fœtus was very largely dependent upon the Rh antibody titre. The following points were shown: (i) A previously immunized woman might undergo a further incompatible pregnancy without any episode occurring in the later pregnancy; (*a*) if the initial titre in such a pregnancy was low, the infant would be mildly affected, but (*b*) if it was high, the infant might be severely affected. (ii) A previously immunized woman might have one or more episodes in a subsequent incompatible pregnancy. The outcome for the fœtus would depend upon: (*a*) the number of episodes, (*b*) the amplitude of titre rise, (*c*) the duration of high titre antibodies. (iii) Antibody titres might fall between pregnancies, but sufficient time should be allowed for that to happen. A sensitized woman mated to a homozygous man had a much better chance of having a surviving infant if her titre was low rather than raised at the beginning of the pregnancy. (iv) Episodes of immunization did occur and might be dangerous in the last six weeks of pregnancy.

J. H. COLEBATCH (Victoria), in opening the discussion, said that Dr. Kelsall and his colleagues had over the past five or six years done a very great service to Australians by showing them what an enormous amount could be learnt from studies of antibody titres in the mother's serum during and after pregnancy. It was necessary to emphasize that point, as there was still a tendency at some of the larger hospitals to disregard the titre levels in the management of those patients. The policy of maternity units with regard to the handling of erythroblastosis had changed a lot in recent years, and it was now generally agreed that early induction of labour was desirable in selected cases. Dr. Kelsall in his paper had given good reasons for taking a persistently high or sharply rising titre level as an indication for induction of labour as early as the thirty-fifth or thirty-sixth week. Melbourne experience agreed with that, and some of their obstetricians had successfully handled such cases with induction even as early as the thirty-third week. Dr. Colebatch said that he himself was not quite so happy about placing full reliance on the titre level. In an analysis of erythroblastotic stillborn babies at the Royal Women's Hospital two years previously, he had found in their records that the titres seemed to be predominantly to blame for the still-birth in little more than half the

cases, and that in the others an only moderately severe immunization of the mothers with titres from 1/64 to 1/500 was associated with significant complications of pregnancy. He would therefore say that the presence of such obstetrical complications might be taken to warrant early induction of labour with titres that were only moderately elevated, particularly when one knew the father to be homozygous, and when the mother had had a previous erythroblastotic tragedy. At the other end of the scale Dr. Kelsall had given great help by his evidence that a persistently low maternal antibody titre could be taken as a reassuring sign, so that even with a homozygous father and a bad family history the mother whose titre remained consistently low could be safely left to go to term. Dr. Colebatch asked whether Dr. Kelsall would say what he regarded as the minimum frequency with which one needed to estimate titre levels in the last weeks of pregnancy. To estimate them every week, as Dr. Kelsall might have done, would not often be practicable in general practice. Dr. Colebatch said that he was intrigued by Dr. Kelsall's cases in which mothers with a high titre were after a still-birth advised to wait a few years for the titre to fall to safer levels before embarking on another pregnancy. He wondered whether enough patients of that type had been followed to quote the chances of such advice to a mother paying off. The really outstanding feature of Dr. Kelsall's paper, in his opinion, was the hypothesis, well documented, that immunization of the mother was probably not going on all the time throughout the pregnancy, but that it occurred in episodes that resulted, like an injection of vaccine, in peaks of antibody titre. So far as Dr. Colebatch was aware, that was an entirely original concept, which, if firmly proven, would explain many of the enigmas of erythroblastosis that worried people at present.

KATE CAMPBELL (Victoria) also congratulated Dr. Kelsall on his paper, and said that she would like to ask him a series of questions. First, did he take for his estimation only the indirect Coombs test? She herself had found that other estimations of antibody titres were unreliable. Dr. Campbell then asked Dr. Kelsall whether he found difficulty in estimating the Rh titre where Rh-negative babies were involved. She wondered how Dr. Kelsall accounted for different titre levels and different degrees of elevation of the titre in different pregnancies. Finally, Dr. Campbell asked whether Dr. Kelsall thought that handling of the uterus accelerated the leakage of placental blood into the mother's circulation. Would he suggest that mothers should be rested during the last few weeks of their pregnancy?

J. D. MATTHEWS (New Zealand) asked Dr. Kelsall whether he considered that any non-specific antigen could in any way stimulate a high rise in maternal titre. Dr. Matthews also asked Dr. Kelsall for details of his method of performing the titre estimation.

Dr. Kelsall, in reply to Dr. Campbell, said that they did use the indirect Coombs test at present, but they had another test under consideration. The difficulty in estimating Rh titres in Rh-negative babies was a purely technical matter. Different titre rises in different pregnancies perhaps depended on the degree of a placental leak. He did not advocate sending mothers to bed in the last few weeks of pregnancy, but urged the obstetricians to handle the uterus with extreme gentleness. In reply to Dr. Matthews, Dr. Kelsall said that he thought that apparent rises in titre from non-specific stimuli might be due to errors of laboratory titration. They took great care with the teaching of their technicians, and insisted that they should be able to duplicate their results over and over again without error before setting them on to the work. He felt very confident of the accuracy of their results. In reply to Dr. Colebatch, Dr. Kelsall said that he liked the obstetrician to have antibody estimations made at the first visit, again between 16 and 20 weeks, between 28 and 30 weeks, and at 36 weeks. Those were a minimum. In addition, at the King Edward Hospital, the cord blood of all babies was taken at delivery and a Coombs test was performed on it.

Section of Pathology, Bacteriology and Biochemistry, and Forensic Medicine.

President: Professor E. S. J. King, M.D., M.S., D.Sc., F.R.A.C.P., F.R.C.S., F.R.A.C.S., Victoria.

Vice-Presidents: C. B. Cox, B.Sc., M.B., B.S., M.C.P.A., New South Wales; Professor J. S. Robertson, M.B., B.S., D.Phil., South Australia; F. N. Hales, M.B., B.S., M.C.P.A., Queensland; J. H. B. Walch, M.B., Ch.B., B.Sc., Tasmania.

Honorary Secretary: A. McS. McArthur, M.B., Ch.B., D.T.M. & H., M.C.P.A., Tasmania.

The Topography of Ignorance: The Cancer Problem.

E. S. J. KING (Victoria) took as the subject of his president's address "The Topography of Ignorance: The Cancer Problem". He said that he proposed to discuss in particular the present state of that part of pathology which was rapidly achieving relative importance—cancer research. He referred to the danger of over-specialization in pathology, as in other branches of medicine, and discussed some of the advances made in recent years. He also stressed the obligation of research workers to record their findings for the use of others, since they themselves were dependent on information passed on to them by others, and on the community for the facilities provided for their work. Professor King then briefly mentioned some of the recent contributions made by his department in the field of cancer research, giving some account of the historical background. He said that various stages of development of tumours following the action of various carcinogens had been studied. Some of the tumours were peculiar to certain species and some were found only in certain organs. One of the diazo dyes (butter-yellow) had been specially studied; it was of great value in experimental research, because it produced characteristic and consistent changes in the liver. The same phenomena had been observed with a large series of related substances. Experimental work had covered a wide range of animals and of techniques. The effects of many chemical carcinogens, of various physical agents ranging from mechanical forces up to gamma radiation and numerous viral agents, singly and in combination with various other materials, had been studied. Some were co-carcinogens, others anti-carcinogens. It was of special interest that some of the carcinogens might be anti-carcinogenic to others. That was important when conclusions were being drawn on the action of materials which were not in pure form; as an example, at least two of the carcinogens obtained from tobacco smoke were mutually antagonistic.

The chemical carcinogens had been used to produce a great variety of tumours in different organs, and had permitted observations of the early stages of the condition and of the pre-cancerous stages. There were considerable differences in the effects produced in different species, and it was important that various species should be examined. One of the serious defects of the conclusions drawn from modern cancer research was that the results had been too easily transposed from the lower animals to the higher animals, including man; usually such conclusions were unjustified. A study of experimental tumours also allowed scrutiny of metastases and of the nature and method of control of tumours by hormones and other agents. The effects were often surprising. Professor King mentioned the investigation of transplanted tumours, and pointed out that they differed in a number of ways from naturally occurring tumours. He then referred to the question of the mode of action of the chemical carcinogens, which he said was of fundamental significance. Numerous compounds were required for study; they were often new and therefore not available commercially. The production of such material had thus become an essential subsidiary research. In so far as the materials produced their effect by union with cytoplasmic components, the study of similar compounds showed which part of the molecule became attached to the tissue, and therefore the region in the molecule which was presumably active. A great deal of investigation had been carried out in the Department of Pathology in the University of Melbourne, mostly on the liver of the rat after feeding with butter-yellow. It had been shown that the dye became attached to the component of the soluble cytoplasmic proteins. That raised two problems, which were being investigated: (i) what protein or proteins were affected; (ii) which part of the protein was particularly involved. Up to the present, it had been found that a characteristic component attached to dye was being consistently recovered, and that was being studied in detail. Professor King went on to say that serological studies on tumours had emphasized the similarities between tumour tissues and normal tissues, so that an antibody to a tumour would also be an antibody to the normal cell corresponding to it. However, the demonstration of some recognizable difference between the two tissues had been repeatedly attempted, the ultimate aim being to develop antibodies to tumours that could be used therapeutically. The serological approach had also been used in the development of hypotheses concerning the mode of development of the cancer cell. Professor King referred to the work done by C. J. Louis and P. Hughes with fluorescein-globulin staining of tumour and normal cells and said that their findings would throw considerable light on certain aspects of chemical carcinogenesis.

A New Concept of Mucus Formation.

D. T. BURKE (Victoria) showed a film entitled "A New Concept of Mucus Formation". The concept was that mucus formation resulted from leucocyte disintegration on mucous membranes. Dr. Burke presented experimental proof of the theory in the following manner. (i) A colour film in which time lapse photomicrography was used showed the disintegration of leucocytes with mucus production. (ii) Another sequence showed that the mucus was formed from the cytoplasm, the nucleus remaining intact. (iii) A third sequence showed that mature eosinophils did not contain any "mucigen" in their cytoplasm. (iv) The film then showed the in-vitro synthesis of human mucus in the test tube in copious quantities.

Cancer Research.

P. L. BAZELEY (Victoria) read a paper entitled "Cell Studies in Cancer Research", in which he said that the essential nature of the change within normal cells whereby they became neoplastic was gradually being clarified as a result of intensive research throughout the world. Most evidence indicated that the change was associated with the loss of single enzyme or even complete enzyme systems. It was also clear that there were antigenic differences between normal and neoplastic cells of the same animal. Moreover, it was possible to produce cytotoxic sera against both normal and abnormal cells. Those findings indicated that essential clues to the understanding of the change from normal tissue into neoplasia were slowly coming to hand. They also suggested the probable routes by which attacks might be made on the problem of cancer, which was essentially a disease of the individual, and consequently must be considered largely from that point of view.

P. E. HUGHES (Victoria) read a paper entitled "Evidence Concerning Modern Hypotheses of Carcinogenesis". He said that in recent years the idea that the loss of a growth controlling factor was of causal significance in carcinogenic processes had gained increased support. Amongst the carcinogens, the aminoazo dyes had received most attention from investigators, and more was now known of the metabolism of 4-dimethylaminoazobenzene (butter-yellow) than of any other carcinogen. Butter-yellow was a specific hepatic carcinogen when fed to rats and mice, and had been found to be non-carcinogenic for a large variety of species. Dr. Hughes discussed in detail the results of investigations that had been carried out on the role of butter-yellow in liver carcinogenesis, and said that there was an increase in the weight of evidence that the binding of carcinogens by cellular constituents was of causal significance as the initial step in carcinogenesis. That resulted in a deletion of growth-controlling protein, finally giving rise to tumour cells. Whilst the most direct evidence concerning carcinogen binding had come from investigations involving the aminoazo dyes, there was less complete but otherwise parallel evidence that a similar process occurred with aminofluorines in the polycyclic aromatic hydrocarbons. The evidence of protein deletion had come from observations on the loss of dye-binding capacity in tumour cells, from electrophoretic studies of normal and tumour cell proteins and from a fluorescein-globulin staining technique, details of which would be discussed by Dr. C. J. Louis. At present it might be said that there was considerable evidence for, but none which was inconsistent with, a protein deletion hypothesis of carcinogenesis.

C. J. LOUIS (Victoria) read a paper entitled "Fluorescein-Globulin Staining of Normal and Neoplastic Tissues (with Special Reference to Leukæmia)". He drew attention to a report by Weiler that the cells of rat hepatomata had lost thir organ-specific antigen, and presented a brief description of the evidence on which Weiler based his claims. Dr. Louis said that he and his co-workers had been unable to obtain an organ-specific antiserum by using Weiler's methods; however, they had obtained identical differential staining of cells with any fluorescein-globulin fraction, whether or not the donor rabbit had previously been immunized with rat liver. Although they were unable to agree with Weiler's interpretation that hepatoma cells had lost their organ-specific antigens, they had nevertheless confirmed his observations that those cells had a noticeably decreased affinity for rabbit globulin-fluorescein complexes. Degenerate cells were also noted not to stain. In order to determine whether that staining reaction was a peculiarity of rat hepatoma tissue or whether it was a feature common to all other neoplastic tissues, they had carried out an extensive investigation on a large series of tumours in rats and mice, and finally in a large series of human tumours, both benign and malignant. Differential staining was observed in all malignant tumours arising from epithelial tissues. The normal and hyperplastic cells fluoresced brightly, whereas their malignant counterparts did not. On the basis that it was a general property of neoplastic tissue not to stain with fluorescein-globulin complexes, whereas normal tissues did so, the investigation was extended to attempt to answer the question whether the leukæmic process was neoplastic in nature. The staining characteristics of normal peripheral blood cells were investigated. In general, normal erythrocytes failed to fluoresce, but leucocytes fluoresced well in ultra-violet light. Only the cytoplasm of those cells fluoresced, and in the granular leucocytes the fluorescence appeared to be mainly confined to the cytoplasmic granules. Marrow smears were investigated, and it was found that all the parent cells of the myeloid, lymphocytic and monocytic series fluoresced well. Finally,

polymorphs from a patient with leucocytosis and atypical lymphocytes from glandular fever blood films were found to fluoresce brightly. A large series of cases of leukæmia from all the usual groups was then investigated by examination of the peripheral blood. In the acute leukæmias, in general, the more mature types of cells fluoresced, while the more primitive cells failed to do so. The number of non-fluorescing leucocytes appeared to correspond to the percentage of "blast" cells in the peripheral blood, but the observation was obscured by blood transfusion. In some cases the acute leukæmia occurred as an exacerbation of chronic leukæmia. Of the cases of chronic leukæmia, most were of the chronic lymphatic or chronic myeloid types. All the leucocytes fluoresced brightly. On the basis of those observations, it seemed clear that the chronic leukæmias were non-neoplastic diseases. In the acute leukæmias there was a mixed cell population; some of the cells had the characteristics of neoplastic cells, while the others had those of non-neoplastic cells. The nature of the non-staining cells was not clear; the problem was whether they were embryonic or actually neoplastic. Dr. Louis drew attention to the analogy between the occurrence of malignant change in benign tumours and the occurrence of acute leukæmia in chronic leukæmia (if the last mentioned was regarded as non-neoplastic). The analogy that he had mentioned was not regarded as being conclusive as to the nature of the leukæmic process, but it was presented as another observation to show that some of the leukæmias conformed to the point of view that they were neoplastic in nature. Observations on animals showed that the leukæmic conditions in animals (particularly the mouse) were different from those commonly occurring in man, and the greatest number of them were actually neoplasms. Thus any conclusions drawn from the study of the disease in animals should be interpreted with care, and were not necessarily applicable to the disease as observed in man.

C. B. Cox (Syney), in opening the discussion, said that even when an explanation of experimentally produced cancer in terms of chemistry or physics was forthcoming, the problem of naturally occurring growths remained. The agents experimentally successful in small animals were not commonly ingested by man, or, for that matter, by the animals under natural conditions. Even the organs which were vulnerable in experiments were not necessarily the tissues most liable to naturally occurring neoplasms. With particular reference to Dr. Hughes's paper, Dr. Cox wondered what factors determined the actual group of hepatic cells to show neoplastic change. If it was assumed that all the cells were exposed to the exciting agent, why did not every cell in the liver simultaneously become a carcinoma cell? Was there any hypothesis to account for the actual site of the neoplasm? Dr. Cox said that Dr. Louis, in bringing to notice the globulin fluorescent staining of tissues, seemed to have opened up a field of great practical importance, whatever the theoretical considerations. The histopathologist of the past, and for that matter of the present, was dependent for his diagnosis on what he could see in tissues stained by comparatively simple means, and in general Dr. Cox thought that it could be said that the histopathologist had not done at all badly by those means. However, the application of the staining technique under discussion appeared to offer a far greater percentage of accuracy in the difficult cases, as, for example, in rectal biopsy. Turning to the question of the staining of cells in leukæmia, Dr. Cox asked whether the fluorescence of leucocytes in chronic cases could not be interpreted as indicating that chronic leukæmia was a well-differentiated neoplasm, whereas acute leukæmia was a neoplasm showing poor differentiation. Viewed in that way, the leukæmias were analogous to neoplasms in other tissues.

L. I. TAFT (Victoria) wondered whether the absence of iron in hepatoma complicating hæmochromatosis might be regarded as analogous to the failure of binding of DAB in the induced hepatomata in rats. That failure of binding of certain substances by the cytoplasm of neoplastic cells might be a general property which could be put to certain uses. Dr. Taft asked whether Dr. Louis had been able to test his fluorescein-conjugated globulin stain on well-differentiated malignant conditions such as lateral aberrant thyroid, and on benign tumours which might be confused with malignancy such as *molluscum pseudocarcinomatosum*. He had found that the intensity of fluorescein globulin staining could vary with variations in the thickness of the frozen, unfixed section, and also diminished with necrosis and degeneration of tissue, a fact which could confuse the interpretation of the results of staining. Dr. Taft went on to say that he felt that equating malignancy with fluorescein-globulin staining was dangerous. Malignancy referred to the behaviour of the tumour, and was thought to develop over the course of several somatic mutations of the cells concerned, a situation hard to correlate with the presence or absence of fluorescein-globulin staining.

Dr. Hughes, in reply, said that the absence of iron in hepatoma cells in hæmochromatosis was due merely to the failure of malignant cells to store iron, and it was not a question of binding. The relatively short life of the tumour cells had not allowed time for them to accumulate iron pigment.

Dr. Louis said that differential staining between normal and malignant tissues had been obtained in every case examined, irrespective of the degree of differentiation in the malignant areas. The method of section cutting employed supplied sections of uniform thickness throughout; so there was no possibility of any confusion in that regard. In reply to Dr. Cox's questions, Dr. Louis said that marrow undifferentiated cells in chronic leukæmia fluoresced; so it was not a question of differentiation.

E. S. J. KING (Victoria), in elaborating this explanation, said that the most differentiated of malignant tumours failed to flouresce, from which it was deduced that any so-called tumours which did fluoresce were only hyperplasias.

E. L. FRENCH (Victoria) asked Dr. Louis if the globulin-fluorescein complex was necessary for staining, or if the unbound dye would give similar results.

Dr. Louis, in reply, said that in investigating the components of the stain it was found that the fluorescein amine would not stain anything, whilst the fluorescein isocyanate stained both epithelial and connective tissue cells and gave minimal differentiation between malignant and non-malignant epithelial cells. However, the method of extraction of free fluorescein derivatives from the fluorescein-globulin conjugate was such that the concentration of free fluorescein derivatives in the stain was insufficient to cause any staining.

C. A. DUNCAN (Tasmania) asked if the findings reported supported the multicentric, as opposed to the unicentric, origin of tumours.

Dr. Louis replied that the change was multicentric within an organ or specified area, but from the point of view of the body generally it was unicentric.

E. L. French asked Dr. Louis if normal fœtal tissues or teratomata stained by the technique described.

Dr. Louis said that a 14-day rat fœtus which was examined showed a positive staining reaction of the epithelial elements.

D. M. MCLEAN (Victoria) asked Dr. Bazeley if any attempt had been made to transplant the propagated tumours into human subjects.

Dr. Bazeley said, in reply, that transplantation had been successful in two patients only of a quite large series. The experimental tumour was type HEP 3, and the patients concerned already had advanced malignant disease. The other transplants were rejected in the same way as was a foreign skin graft.

Professor King commented that one of the next steps in view was to see the results of fluorescein-globulin staining of tumour tissue cultures such as Dr. Bazeley described.

E. L. French said that he believed that changes in the so-called cell lines from normal to neoplastic were accom-

panied by changes in the morphology of the cells. Some years previously he had succeeded in maintaining human amnion cells in serial passage for many transfers without morphological changes, provided that an extract of normal human amnion tissue was included in the culture fluid. When that material was omitted, the cultures or cells dried out in one or two passages. He wondered if that observation was related in some way to Dr. Bazeley's observations.

W. PULLEN (N.S.W.) asked if the speakers could offer any explanation of the long delay in the appearance of metastases and the extremely rapid progress of the metastatic growth once it had appeared.

Professor King, in reply, said that three factors could help to explain the phenomenon. The first was the exponential type of growth curve shown by multiplying tumour cells; the second was the loss of the controlling effect of certain endocrine secretions, especially the adrenal, when these were replaced by tumour; the third was physical stress—for example, the rapid enlargement or progression of a tumour when the body was subjected to some definite stress, such as general physical injury.

Dr. Bazeley said that the body early had a resistance to new tumour tissues which later was overcome. That resulted in very rapid growth of the tumour.

Dr. Cox asked if any plant pigments had been found to be carcinogenic.

Dr. Hughes replied that there were none so far as he knew.

Dr. Taft asked if fluorescein-globulin staining had yet been tried to assist in the diagnosis of some difficult carcinomata, such as carcinoma of the thyroid.

Dr. Louis, in reply, said that as yet they had had only one carcinoma of the thyroid on which to test the method, and in that case the tumour tissue did not fluoresce.

Classification in Relation to Prognosis in Malignant Lymphomas.

S. O. M. WERE (Victoria) read a paper entitled "Classification in Relation to Prognosis in Malignant Lymphomas", which was based on an analysis of 281 cases of malignant lymphoma at the Peter MacCallum Clinic, Melbourne. Dr. Were classified the material histologically into four main groups, comprising follicular lymphoma (56 cases), lymphosarcoma (71 cases), Hodgkin's disease (106 cases) and reticulosarcoma (48 cases). A further subdivision of the cases of follicular lymphoma into types I, II, III and IV, of lymphosarcoma into lymphocytic and lymphoblastic lymphosarcoma, and of Hodgkin's disease into grades I, II and III was made according to histological criteria. From an analysis of 55 cases in which later material was able to be reviewed, Dr. Were showed that a single biopsy specimen remained representative of the condition in all groups except follicular lymphoma and Hodgkin's disease grade I, in which progression to a more malignant condition might occur. From investigation of percentage survival following onset, it was found that the best prognosis was shown in Hodgkin's disease grade I (87% five-year survival) and follicular lymphoma (67%). Dr. Were said that a trend towards shorter survival was apparent in type IV follicular lymphoma. Of patients with lymphocytic lymphosarcoma 31%, and of patients with Hodgkin's disease grade II 38%, survived for five years, whereas few patients with Hodgkin's disease grade III, lymphoblastic lymphosarcoma and reticulosarcoma lived longer than two years. Dr. Were concluded by saying that the classification appeared to have clinical value.

Discussion.

L. I. TAFT, in opening the discussion, said that the problem of classification of tumours of the lympho-reticular tissues in relation to clinical behaviour was not a new one, and clearly it was the task of those who saw large numbers of such cases so attempt a solution of the problem. They were very fortunate in hearing Dr. Were's experience with such cases, occurring as they had done in their own clinics. Detailed histological classifications as initially presented by Robb Smith had certain virtues for the histopathologist, but the clinicians said that the minor variation of appearance which he described possessed no importance in terms of the clinical behaviour of the disease. Border classifications, such as the one presented by Dr. Were, seemed to show at least partial separation in terms of histological appearance, prognosis and response to various types of X-ray therapy and chemotherapy. Histological grading and prognosis in general terms correlated with the rate of progression of the tumour, but in any individual patient there were a host of other factors, such as the age and general condition of the patient, the degree of general spread, local sites of involvement by tumour, and alterations in the natural history of the disease induced by therapy. Many authors had commented on the variation in histological appearances at different sites in the same gland, in different glands and at different periods of the disease. It was important that the pathologist should know the unfolding of the histological appearance of the glands, and the nature of spontaneous changes and changes induced by therapy, some of which were very striking. Dr. Taft said that Dr. Were had made reference to adequate biopsies. Dr. Taft would like to know what Dr. Were regarded as an adequate biopsy. Dr. Taft thought that the pathologist should be in the operating theatre to guide the surgeon in the removal of adequate biopsy material, and he preferred to examine whole glands rather than a few of them. He would also like to ask Dr. Were the value of silver reticulin impregnation stains in the diagnosis of lymphomata. Dr. Taft said that, in summary, the important feature of Dr. Were's classification was that there was a relationship to prognosis and to the type of therapy involved, and the statement of those histological criteria and method of statistical analysis had been of great value to all those present.

J. MADIGAN (Victoria) said that he had been on the receiving end of Dr. Were's pathological classification at the Peter MacCallum Clinic. They were all aware of the average prognosis for diseases such as Hodgkin's disease; but inasmuch as the survival of the individual patient could vary from as little as five months after presenting with "Hodgkin's sarcoma" to as long as 17 years with "Hodgkin's paragranuloma", it was important to attempt to get some more accurate idea of the individual prognosis from case to case. To that end, clinical staging and pathological grading prior to treatment had been recorded. As Jelliffe and Thomson had shown for Hodgkin's disease, those two features permitted finer prognostication for all the lymphomas. Although there was no great difference in the survival rates for lymphoblastic lymphosarcoma, Hodgkin's sarcoma and anaplastic reticulosarcoma, there was a great variation in their radiosensitivity. In particular, reticulosarcomas had been very insensitive to either radiotherapy or chemotherapy. Dr. Madigan said that whilst he agreed that a unitarian approach to the lymphomas had many advantages from the pathological viewpoint, the pathological grading outlined by Dr. Were had been useful in the clinical management, the choice of treatment and the assessing of prognosis in more than 250 cases of lymphoma presenting at the Peter MacCallum Clinic.

J. O. POYNTON (S.A.) said that in his experience with two or more biopsies classifications of the lymphomata tended to be fallacious and to have their pitfalls.

P. L. BAZELEY (Victoria) asked Dr. Were whether, in his opinion, the sarcomatous process was the secondary change in a primary benign process, or if it was primarily malignant.

S. E. J. KING (Victoria) offered the comment that tumours of reticular tissue were still little understood, and he felt that they were in fact a mixture of conditions. He preferred to regard some as hyperplasias, especially those with a mixed cell picture and with inflammatory cells. On the other hand, he regarded the lymphosarcoma and reticulosarcoma as neoplasms.

F. N. HALES (Queensland) said that the prognosis charts did not indicate (and he thought it was pertinent) whether treatment had been given.

Dr. Were, in reply to Dr. Taft, said that a whole gland, or group of glands, was highly desirable, as a single node at the edge of a group might show only non-specific changes. Drill biopsy or trephine biopsy was generally unsatisfactory, but might on occasions afford diagnostic material. In reply to Dr. Taft's second inquiry, Dr. Were said that they had not found reticular impregnation of much assistance in differential diagnosis. In reply to Dr. Poynton, he said that they had been able to get more than one biopsy in only a small proportion of cases, but in those they had found that the appearance generally remained within the original classification. In reply to Dr. Bazeley, Dr. Were said that he believed that all the conditions discussed were malignant neoplasms from the outset. In reply to Dr. Hales he said that most of the patients had been treated by radiotherapy or chemotherapy.

The Pathology of Deaths during Influenza Epidemics.

E. L. FRENCH (Victoria) read a paper entitled "The Pathology of Deaths during Influenza Epidemics", prepared in collaboration with K. M. BOWDEN. Dr. French referred to influenza as a disease characterized by a high infection but relatively low mortality. However, it was on occasion the cause of sudden or unexpected death, and then it was important to be able to recognize the disease in the post-mortem room. It was surprising that since the influenza virus was first isolated only five virologically controlled studies of the respiratory tract in fatal influenza had been made. The present paper recorded observations of 13 autopsies performed in the post-mortem room at the Coroner's Department in Melbourne, on subjects from whom influenza virus was isolated. Two had died during the 1950 epidemic; two during the 1956 epidemic; and the remainder during the "Asian" influenza epidemic of 1957.

Dr. French referred briefly to the techniques employed in the studies, and went on to describe in detail eight of the cases under consideration. He said that previous investigators had mainly focused their attention on the changes found in the tracheal and bronchial epithelium. In cases of influenza unaccompanied by staphylococcal infection the histological features emphasized had been: (i) superficial necrobiosis of the tracheal and bronchial epithelium extending to the basal cell layer, which remained intact; and (ii) regeneration of the epithelium from the basal cell layer in four to six days, giving rise to undifferentiated epithelium. Hyperæmia, hæmorrhage and œdema of the *tunica propria* in cases of influenza were considered to be a consequence of bacterial infection. When *Staphylococcus aureus* was the predominant secondary invader, interstitial extension to the lung parenchyma took place, with hyperæmia, hæmorrhage and œdema. Dr. French said that he and Dr. Bowden had seen those features, but were impressed with certain changes found regularly in and about the deeper mucous and serous secreting glands of the trachea and bronchi. The epithelial cell desquamation and nuclear changes found there were similar in appearance to the damaged cells and nuclei seen in the tracheas of chick embryos infected by influenza virus. Changes of that type were present in greater or lesser degree in all their material from the 1950, 1956 and 1957 cases of influenza. It had been conventional to think of influenza as a surface infection, spreading in the epithelium from cell to cell. The histological changes in the glandular tissues led the present authors to think that in the fatal cases studied the virus probably gained access to the deeper tissues, and was also multiplying in the epithelium of the glands. The presence of plasma cells about the glands was interesting. It was now generally accepted that the plasma cell was the main source of antibody formation. Twenty years earlier Burnet and others had suggested that antibody to influenza virus might be produced locally, in the invaded tissues, but subsequent work had tended to indicate that immunity to influenza was correlated with serum antibody titre. The problem deserved further investigation, and experimental work designed to throw more light on local antibody production was being undertaken. The increase in the death rate of elderly people from heart disease during influenza epidemics had been previously observed elsewhere. The added toxæmia associated with influenza infection caused failure of the already damaged myocardium, with consequent sudden or unexpected death. Such deaths increased in number during the peak of the Asian influenza epidemic in Melbourne. In most of those cases, the tracheo-bronchial tree showed changes similar to those in cases in which the influenza virus had been isolated.

In 28 autopsies performed on elderly people who had died in those circumstances, the influenza virus was isolated on six occasions. Staphylococci were not often isolated. The commonest organism found in that series had been the pneumococcus. On the other hand, fatal influenza in young adults was frequently complicated by staphylococcal infection. In a case of that kind, in addition to the necrosis of the tracheal epithelium, there was an intense hæmorrhagic pulmonary œdema with inflammatory cells in the alveolar fluid. The associated bacterial infection undoubtedly contributed to the death of the patients. In fatal cases of influenza in infants there might be an associated staphylococcal infection, but in the authors' cases, two had been probably associated with meningococcal septicæmia, one with a pneumococcal infection, one with infection by a beta-hæmolytic *Streptococcus faecalis*, and in one no significant bacteria had been found. In some fatal cases there was insufficient change in the lung parenchyma to account satisfactorily for death. There might be little or no warning of impending death. Examination of the heart in these cases sometimes showed areas of toxic degeneration, resembling the toxic myocarditis of diphtheria. The presence of those lesions offered a possible explanation for the suddenness of death and might be related to the prostration and tachycardia observed clinically in adults suffering from influenza virus infection.

A. FERRIS (Victoria) said that during the recent Asian influenza epidemic he had found several complicating bacteria in the trachea, predominantly the pneumococcus. He agreed that local antibody production might be deduced from the plasma cell infiltration of the glands.

P. L. BAZELEY (Victoria) asked if any attempt had been made to isolate the virus from the heart muscle.

Dr. French, in reply, said that one or two attempts had been made without success.

L. I. TAFT (Victoria) commented on the steep rise in the number of autopsies encountered in public hospitals during the 1957 influenza epidemic. He thought that it was important to establish the role of influenza virus in precipitating fatalities amongst hospital populations and to establish the degree of cross infection occurring there. That could be done if microscopic sections of tracheas were obtained and if material was preserved for virus isolation subsequently if necessary.

E. S. J. KING (Victoria) said that the findings in autopsy specimens and later in surgery specimens in bronchiectasis suggested that the changes in the epithelium of the trachea might be those of post-mortem autolysis. He asked what were the time intervals between death and post-mortem examination.

D. M. MCLEAN (Victoria) asked, first, how far down the bronchial tree histological examination had been made and, second, how many cases showed complement-fixing antibodies.

Dr. French, in reply to Dr. King, said that the earliest post-mortem examination was carried out six hours after death, the latest 18 hours afterwards. He agreed that if the autopsy could not be made earlier, the spraying of formalin down the trachea to obtain fixation within half an hour of death would be a useful way to arrest the autolysis. In reply to Dr. McLean, he said that sections were made as far down the tree as the ciliated epithelium went, and the changes were seen to that level. Results for complement-fixing antibodies were inconclusive except in two cases, in which quite high titres were obtained. In

most cases the washings from the patient's trachea proved highly anti-complementary.

Some Important Aspects of Industrial Blood Disorders.

GORDON C. SMITH (New South Wales) read a paper on industrial blood disorders. He said that an appreciable number of harmful materials was capable of causing damage or other changes to the hæmatopoietic system in persons exposed to such materials at their work. The principal disturbances produced by certain substances of industrial or occupational significance comprised interference with or failure of blood formation, hæmolysis or pigment changes of circulating blood. The nature of the abnormality varied with the toxic material, and the same poison might produce more than one type of effect. Harmful substances which affected the hæmatopoietic system in one or more of the ways mentioned included lead, benzene, ionizing radiations, trinitrotoluene, nitrobenzene, aniline and arsine.

Dr. Smith discussed the first three in some detail. He said that lead was a hæmolytic and dyshæmatopoietic poison, and the main blood changes produced by the inorganic compounds were anæmia and stippling of red cells. Although stippling might sometimes occur in the absence of occupational exposure to lead and in other morbid conditions, it had for long been used as a criterion of the intake of lead by the body. The absence of stippling in cases of suspected lead poisoning was considered to be strong or even conclusive evidence against that diagnosis. There was evidence that lead also produced changes in the ratio of large to small lymphoid cells. Periodical hæmoglobin estimations and stippled cell counts were the most important routine measures in the medical control of industrial lead hazards. Referring to benzene (or benzol), Dr. Smith said that it was a very toxic industrial solvent. The most characteristic feature of chronic poisoning was anæmia of aplastic type, with leucopenia and thrombocytopenia, due to severe damage to the blood-forming tissues; but there was evidence that the bone marrow might vary from hypoplasia to extreme hyperplasia, and that a wide variety of blood changes might be produced by benzene or by solvent mixtures containing it.

Regular blood counts constituted an essential part of the medical supervision of benzene workers, and early deviations from generally accepted normal standards should be regarded with suspicion, so that appropriate action might be taken before more serious blood disorders occurred. Dr. Smith then said that ionizing radiations might damage the bone marrow and might produce a variety of blood changes, including aplastic anæmia and leukæmia. Because of that, and in the belief that they provided the most sensitive index of injury by ionizing radiations, the performance of routine blood counts on persons occupationally exposed to radiation had been regarded as an important aspect of protection, particular attention being given to the leucocytes. In recent years, the value of periodical blood counts on radiation workers as a routine control measure had been questioned, and there was now an increasing tendency to discard those examinations in circumstances in which regular monitoring of both personnel and work-place was undertaken.

Pre-employment blood counts were still considered necessary, and guidance as to the need for, and frequency of, subsequent periodical counts might be obtained from recommendations of international or certain national authorities on radiation protection.

V. PLUECKHAHN (Victoria), in opening the discussion, said that if he were to offer any criticism of Dr. Smith's paper, it would be that the paper did not sufficiently stress the dangers and increasing frequency of poisoning by benzol and its derivatives. The effects of lead and radiation were well known, but the even more disastrous effects of the benzol group, and that group's increasingly wide and not adequately controlled use, were not nearly so well known. Medical control of workers using lead was very effective. Radiation was a sword of Damocles, whose very presence made everyone take care. Not so with benzol and its derivatives. Dr. Plueckhahn said that he was particularly grateful to Dr. Smith for raising the problem confronting the industrial use of those substances. That problem even extended into the home with the increasing use of various insecticides, DDT, plastics and even such substances as the detergents, all substances about whose effects on the cells of the body very little if anything was known. Dr. Plueckhahn went on to say that in the case of the benzols he doubted very much whether periodical blood counts were of much use, as fatalities appeared to occur suddenly. Medical supervision of benzol workers was a most complex problem. Even to hope to detect early blood changes needed the over-all and frequent assessment of the worker by a competent hæmatologist, and by the same one. The answer to the problem of prevention lay in the much more rigid control of the supply and the strict control of the methods of use of those substances. To him the danger of the benzols was the insidiousness and final unpredictable explosive burst of chronic poisoning. It was much like the hypertensive patient who lived happily for years with a blood pressure of 260/140 millimetres of mercury, and then all of a sudden went into a terminal rapid malignant phase. Dr. Plueckhahn said that the pattern had been similar in the few fatal cases of benzol poisoning that he had seen. A typical case was that of a widow, aged 55 years, who for 15 years had been making handbags and doing other leather work in a backyard factory. Her processing of the leather and the dyeing had apparently always been the same. She was quite well until two months prior to her death, when she suddenly and quite spectacularly developed acute aplastic anæmia and presented with a hæmoglobin value of four grammes *per centum* and a leucocyte count of 500 per cubic millimetre. That typified what was to him a typical course of fatal benzol poisoning—namely, its insidiousness over many years with a final explosive and incurable episode. He was sure that many workers were even now sitting on that precipice.

L. I. TAFT (Victoria) quoted a case of benzol poisoning in a patient working in ideal circumstances, but with a history of chronic alcoholism and malnutrition. Dr. Taft said that in view of the reported increased sensitivity to benzol poisoning in patients with malnutrition, it would seem reasonable to exclude such workers from exposure to benzol and related substances.

Dr. Smith said that in regard to benzene he had already suggested that aplastic anæmia might be of sudden or unexpected onset, but that possibility should not be used as an argument against undertaking periodical blood counts on benzene workers. Non-performance of blood counts might invite adverse criticism in a legal matter, and by performing those counts one might, of course, detect some abnormality in the blood. Although such deviation might not be of the kind that was commonly regarded as typical of the effects of benzene, Dr. Smith believed that, in view of the variety of changes which benzene was reputed to cause, any abnormality in the blood of a benzene worker should not be overlooked. With regard to nutritional factors, ascorbic acid, thiamine and liver extract had been administered as preventive and therapeutic measures by some investigators.

The Biochemical Changes Associated with Coronary Artery Disease Treated with Magnesium Sulphate.

R. S. PARSONS (Tasmania) read a paper on "The Biochemical Changes Associated with Coronary Artery Disease Treated with Magnesium Sulphate". He said that as the result of the recent publication in South Africa of encouraging results in the treatment of coronary heart disease by parenteral magnesium sulphate therapy (one cubic centimetre of 50% magnesium sulphate solution given three times a week for one month), laboratory investigations had been undertaken on a group of patients exhibiting clinical and/or electrocardiographic signs of such disease. The investigations were carried out before and after magnesium therapy and while such patients were given a normal diet. To date, only 35 patients had

completed the course of magnesium therapy; but the results so far showed, in the majority of cases, a marked improvement in the biochemical pattern correlated with a similar improvement in the clinical picture. The laboratory investigations consisted of the estimations of lecithin, cholesterol and magnesium, fibrinolytic assays, and the demonstration of alpha and beta lipoproteins by electrophoresis. Dr. Parsons said that recent work by himself in England had demonstrated a lowered lecithin-cholesterol ratio (an excess of cholesterol over lecithin) in cases of coronary artery disease. Before therapy, all patients showed an abnormal biochemical pattern with lowered lecithin-cholesterol ratios, low magnesium level, high inhibition of plasmin (fibrinolysin), and usually a high beta lipoid level with, frequently, a pre-beta band. After treatment, while the plasma magnesium level was raised (although not to normal concentration), a normal biochemical pattern was otherwise found—normal lecithin-cholesterol ratio of 1·0 or higher, much reduced inhibition to plasmin, and normal beta lipoids with absence of the pre-beta band. Dr. Parsons showed slides demonstrating graphically the post-therapy reduction in cholesterol content and plasmin inhibition and the increase in magnesium content. Typical examples of changes in the electrophoretic pattern were also exhibited.

Dr. Parsons said that it was hoped shortly to commence investigations, by the use of radioactive magnesium and a continuous flow electrophoresis machine, into the actual role of magnesium, and it was suggested that its action might be that of successful competition with protein-bound cholesterol, with a consequent reduction and excretion of the latter substance. A further series of patients was now being investigated before and after treatment with "Lipostabil", and although it was too early to reach any definite conclusion, the results to date were most encouraging, particularly with regard to the lowering of the serum cholesterol level. He believed that the treatment of coronary artery disease by means of parenteral magnesium sulphate therapy (or, possibly, the use of "Lipostabil") might offer a simple and safe method, whereby the patient could be treated in his own home and without the necessity for control by laboratory investigations at frequent intervals.

W. R. PITNEY (Western Australia), in opening the discussion, said that Dr. Parsons had shown that parenteral magnesium therapy had a plasma-clearing effect which, superficially at any rate, bore a resemblance to the well known clearing effect of heparin. Discussion fell logically into two parts, the mechanism of that action of magnesium and its significance in relation to present-day use on hypercoagulability of blood, and its relation to atherosclerosis. The inverse ratio of magnesium to cholesterol levels in plasma probably signified that magnesium played some part in cholesterol metabolism. No information was available to suggest how magnesium injections lowered the plasma lipid and cholesterol contents. As those values were influenced a great deal by diet, it was important to control that variable in an experiment such as that described by Dr. Parsons. Dr. Pitney said that he would also like to see the result of a short-term experiment with plasma lipid and cholesterol values calculated for a few hours after one injection of magnesium. The clearing effect of heparin was almost instantaneous but short-lived. The results in the paper had practical importance if it was accepted that hyperlipæmia and hypercholesterolæmia were harmful. The values could be lowered by dietary restrictions, but such a diet was unlikely to be accepted by most people. Recent experiments had shown that after a fatty meal the whole blood coagulation time was reduced. It was difficult to imagine that inhibition of fibrinolysin played much part in determining the in-vitro coagulation time. Fibrin production was almost instantaneous once thromboplastin had been produced. A more natural explanation was that phospholipid exerted a platelet-like action in initiating clotting. It was well known that in in-vitro coagulation tests, platelets could be replaced by certain phospholipid preparations. It was conjectural to suggest that fibrinogen inhibition played much of a role in atherosclerosis. Fibrinogen activity was difficult to measure, and fluctuated widely with normal physical exercise. It had never been clearly shown that fibrinolysin played any part in maintaining blood fluidity or preventing mural depositions in vessels. Atherosclerosis occurred in hæmophiliacs and it was difficult to imagine mural thrombosis being very common in that disease.

H. SOPER (New South Wales) said that an interesting natural experiment had occurred in a patient with cholesterolosis as shown by multiple xanthomata, hepatomegaly and a serum cholesterol level of 1100 milligrammes per cubic centimetre. Dr. Soper said that in consultation with Dr. Chambers, it was decided to give her heparin to mobilize the cholesterol deposits, diet alone having produced only some reduction of blood cholesterol content. Their problem was, what was her future from the point of view of coronary disease? And more important, where did the cholesterol go when it was mobilized, and what was its subsequent metabolism?

A. DOBSON (Tasmania) spoke of the clinical side of the investigation being carried out by Dr. Parsons, and said that the patients given magnesium sulphate therapy fell into three main groups, a group in which a dramatic result was obtained, a group in which some benefit was derived from the treatment and a group in which the treatment had no effect at all. His patients had fallen into all three groups.

E. S. J. KING (Victoria) pointed out to Dr. Parsons the extreme need of carrying out a control series as well as his experiment.

The Staphylococcus and the Antibiotics.

E. F. THOMSON (New South Wales) read a paper entitled "The Staphylococcus and the Antibiotics", in which he dealt with the task of treating staphylococcal infection both in the community and in the hospital. He said that it was a difficult task, and must be carried out under strict control in the bacteriology laboratory with the closest cooperation between the clinician and the bacteriologist. Antibiotic therapy of stapyhlococcal infections carried out "on the blind" was to be condemned, especially when it was remembered that 25% to 50% of staphylococcal infections in the general community (depending on the type of lesion) might be due to penicillin-resistant strains. There remained those cases in which the organism was sensitive to antibiotics *in vitro*, but in which antibiotic therapy failed. The search for new antibiotics must continue, even though those antibiotics might be of only temporary value. The value of combinations of antibiotics and the use of antibiotics in conjunction with antitoxin and gamma globulin must be studied; but the most important factor was that antibiotics be used wisely and with reservation.

Dr. Thomson then gave some statistics from the Royal Prince Alfred Hospital, Sydney. He said that from 1930 to 1940, 21 patients with generalized staphylococcal infection had been admitted to that hospital; 14 had died. During the eight years from 1950 to 1957, 80 patients with generalized staphylococcal infection had been treated in that hospital; 46 had died. Generalized staphylococcal infection had increased in the community. There were two groups of patients—(i) those infected within the hospital by cross-infection, (ii) those infected outside the hospital. The increase in 1952, 1953 and 1954 was in hospital infection cases; the reasons were wider use of intravenous therapy, increase in and complexity of major surgery and the advancing years of the patients. The increase in 1955, 1956 and 1957 was in infections outside the hospital; the majority were due to staphylococcus phage type 80, a penicillin-resistant strain developing resistance to other antibiotics in varying degree. Outbreaks of neonatal staphylococcal infection in maternity hospitals throughout Australia had increased, the majority of cases being due to phage type 80.

V. PLUECKHAHN (Victoria), in opening the discussion, said that in two controlled surveys of staphylococcal disease in the new-born carried out at an interval of about 12 months, no evidence of predominance of any particular phage type had been found. Also, strangely

enough, despite an increase in the percentage of babies infected, the second survey showed a slight decrease in the number of penicillin-resistant staphylococci. Those surveys involved a total of approximately 400 infected babies.

R. S. PARSONS (Tasmania) said that the problem of staphylococcal infections in hospitals was one of the greatest menaces of the present day. In Hobart they had had a very serious outbreak resulting in two deaths from septicæmia after Manchester repair operations, and numerous cases of neonatal infection. Two children had been brought in from outside in the Asian influenza epidemic, who had also died of stapyhlococcal pneumonia. In Tasmania there was a Staphylococcal Investigation Committee, whose task it was to see whether there was any possible way of combating that new menace. At the Royal Hobart Hospital, nursing technique, especially in operating theatres and obstetric wards, had been overhauled and tightened up. Blankets now went through a process ensuring proper cleaning and sterilization. All staphylococcal infections were treated only when the antibiotic of choice was known. Unfortunately, there they had phage type 80 sensitive only to "Chloromycetin", and thus it was imperative that the sensitivity be tested for. General practitioners had been approached on the use of antibiotics and their cooperation secured. Though infection at the moment was low, it could be expected that a further outbreak would develop; however, they hoped that measures would modify an outbreak, even if they did not stop it. Dr. Parsons said that it might be of use in all cases of serious staphylococcal infection to employ antitoxin. The deaths were undonbtedl ydue to acute toxæmia. In cases of staphylococcal enteritis also that might help, especially in the very young, after the accompanying dehydration, etc., had been treated.

Alcohol as a Factor in Medico-Legal Sudden Deaths.

C. A. DUNCAN (Tasmania) read a paper entitled "Alcohol as a Factor in Medico-Legal Sudden Deaths", in which he presented the results of blood alcohol estimations carried out at Hobart during a period of three and a half years on victims of fatal traffic accidents and on other deceased persons. He said that blood samples were collected from a peripheral venous source and estimated by the methods of Cavett and of Kozelka and Hine. Errors in the estimations might occur when blood was taken from the chest, from the abdominal cavity or from the heart, owing to post-mortem diffusion from the stomach. In certain cases the urinary alcohol content was also estimated and might give useful additional information. Dr. Duncan said that the figures were of great value to the coroner and to other interested persons, and he quoted a series of illustrative examples. He said that tests were of most value in fatal traffic accidents, and in other cases in which death was associated with intoxication. He pointed out that a negative result to a test might in certain circumstances be very important.

M. VERSO (Victoria) said that Dr. Duncan's paper brought two things home. The first was the value of blood alcohol estimations in a wide variety of circumstances, in sheeting home guilt, in exonerating the innocent and in explaining things which would otherwise be inexplicable. The second thing it emphasized was the extent of the social problem posed by alcohol as a cause of sudden death and as a background to crime. It was on that aspect that he wished to comment. Dr. Verso went on to say that in Victoria one aspect of the problem had received considerable publicity in recent months—the relation of alcohol to traffic accidents and traffic deaths. There had been considerable police activity against the drunken driver, and the police surgeon had made himself available at all sorts of odd hours to examine those charged with "driving under the influence" and to take blood from them for alcohol estimation. At the same time he was in the process of collecting statistics on that subject. One most significant fact that had emerged so far was that, when graphs were made of the incidence of traffic accidents and of the incidence of arrests for drunken driving, parallel curves were obtained. Furthermore, both those curves showed peaks between 6 and 8 p.m. each day and a rise on Saturdays with exaggerated peaks.

Dr. Verso further said that, apart from drunken driving, most policemen would agree with the statement that alcohol played a big part in all types of crime, although statistics on that point were difficult to obtain. Obviously, many crimes of passion carried out by people who were not ordinarily criminals were perpetrated under the influence of alcohol. In that category came assaults, murders and many rapes. But what was perhaps not generally realized was that many planned crimes carried out by professional criminals were associated with alcohol. The crime might be planned in cold blood, but the criminal required an appreciable amount of Dutch courage before he put his plans into execution. Therefore many of the less violent crimes, such as burglary and thieving, were generally associated with alcohol. Some statistics from America on alcohol and violent death were of interest. Thus, Gonzales and Gettler, in 1941, had found that 30·7% of pedestrians killed in traffic accidents were under the influence of alcohol. Again in Spain, Bradess and Eggston had found that alcohol was a contributing or responsible factor in 27% of 246 consecutive cases of violent death. In their series, 19% of 78 suicides, 24% of 82 non-industrial accidental deaths, 46% of 78 traffic accidents and 87%—seven out of eight—homicides were associated with alcohol. Dr. Verso finally said that Dr. Duncan had given several case reports of various ways in which death could be associated with alcohol. He had rightly stressed the danger of insufflation asphyxia. To him (Dr. Verso) it was rather surprising that such accidents were not more common. Apart from that type of death, when a man's coordination and judgement were impaired, the list of accidents to which he was prone was endless, and Dr. Duncan had given a variety of examples. In Melbourne they read in their daily papers of inordinate numbers of cases of people being burned to death in bed. Many of those victims were moderately drunk, had gone to bed and lit a cigarette, dropped into a deep slumber and the bedclothes caught alight. A sober person would wake in time to save himself if his bed caught alight, but the drunk slept on and perished.

Section of Public Health, Industrial Medicine and Hospital Administration.

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The Australian Hospital Industry.

DOUGLAS GORDON (Queensland) took as the subject of his presidential address "The Australian Hospital Industry". He said that he had made a compilation of the latest statistics concerning hospitals in Australia (Commonwealth territories excepted). Information of that kind in certain categories was hard to find, and when it was found it hardly provided data which could be used for valid comparisons. With those difficulties in mind, information gained suggested that South Australia and Victoria had a conservative economic policy towards hospitalization, and Queensland and Western Australia at the other end of the scale had a liberal economic policy. Queensland had the greatest number of beds per thousand of population, the greatest hospital usage per thousand of population, the least staff per bed, the greatest amount of State grant to hospitals per head, and by far and away the lowest daily patient cost. However, it could be that in geographically large States with centres of population far apart greater public expenditure on hospitals was required than in smaller more compact States in order to maintain any kind of reasonable medical standard. No evidence could be found that the differences in hospital policies as from State to State made much difference to the over-all health of the community. If any deficiencies existed in any one State they were certainly not sufficiently great to influence vital statistics. Professor Gordon pointed out that the hospital industry was an important one in the national economy by reason of the number of people employed and the money expended on it. However, he also pointed out that a people who spent at least ten times the amount of the national costs of hospitalization on gambling, alcohol and tobacco could surely afford to pay for their hospitals by way of some contributary scheme. In conclusion, Professor Gordon said that medical hospital administration was a highly skilled specialty, and it was time that it received due practical recognition from the medical profession, the people and the employing authorities.

Hospital Administration.

After Professor Gordon had delivered his presidential address, he conducted from the chair a quiz session on hospital administration, in which a series of questions were posed to a panel for discussion.

QUESTION 1.—What are we aiming at in our hospital planning; should we provide the patient with a bed, a good doctor and basic board only, or can we afford to make his stay in hospital as pleasant and comfortable as possible?

C. J. MCCAFFREY (N.S.W.) said that the answer to the question was largely determined by the philosophical approach taken by the community, and particularly its medical personnel, to hospitalization. In the English-speaking world the present attitude was that the hospital was a place to which doctors sent patients to be treated irrespective of whether that was the best line of action for the patient. That attitude dominated both the structure of hospitals and the number of beds provided per 1000 of population. If the place of the hospital in the community was analysed as critically as an average business man analysed his industry, the foremost question would be: "What is the objective of the hospital?" If that was answered honestly, that it was a place for the care and management of the sick which could be provided only in that way, then the number of beds required per 1000 of population would drop significantly.

Dr. McCaffrey went on to say that in Australia at present it cost approximately £1500 to maintain one hospital bed for a year. On that basis each bed per 1000 of population meant a cost of approximately £1,500,000 per million of population; thus a saving of even one bed per 1000 of population would make a considerable reduction in the total cost of maintenance of hospitals by the community.

In the United States the present overall figure was 4·2 beds per 1000 of population, while in some States there were as few as three beds per 1000, which number was found to be adequate. In the United Kingdom the Nuffield Foundation reported that two beds per 1000 of population were sufficient if the beds were used in the proper manner, so that the interest of the patient was of prime importance and not the interest of the doctor. The Kaiser Corporation was allowing two beds per 1000 of population. If the number of hospital beds available in Australia was reduced from approximately seven beds per 1000 to five per 1000, there would be a saving of many millions of pounds per year which would be available for preventive medicine and other general health services. That policy would allow for the provision of better hospitals and better staffing. In the United States there was an extensive replacement programme, whereas in New South Wales there was not only a replacement programme, but also a programme to provide more hospital beds per 1000 of population.

J. L. GROVE (Tasmania) said that his comments were based on his experience as chairman of a hospital board. He could not but agree with what Dr. McCaffrey had said. In his experience it was so easy for the average practitioner in northern Tasmania to secure the hospital beds for his patients that he made little or no attempt to review critically whether hospitalization was or was not the most satisfactory way to manage any particular case. In his opinion, if the correct use was made of a hospital and only those patients were admitted who could not be treated in any other way, then it would be possible to provide adequate hospital care with half the number of beds at present available.

QUESTION 2.—In a large city is there any merit in the smaller suburban hospital providing for units of 25,000, 50,000 and 100,000 people, leaving a central hospital to handle highly specialized surgery and complex investigations?

J. M. M. DREW (Tasmania) said that in Tasmania the aim was to provide a hospital when the population in a particular area reached 100,000. However, special surgery and highly technical investigations would continue to be done in central hospitals in Hobart and Launceston.

C. J. MCCAFFREY (N.S.W.) said that the answer to the question was tied up with the answer to the first one. The number of hospitals and their size depended upon the philosophy. Small hospitals must be integrated in a large regional scheme, so that a patient admitted into a small hospital could be rapidly transferred to a large central hospital whenever special treatment was needed.

K. BRENNAN (Victoria) said that surely it was necessary to be specific about the definition of a sick person. Some

types of sick people required less expensive hospital care than others, and it should be possible to provide hospitals for the chronically ill which were less expensive than those for the acutely ill.

C. J. McCAFFREY (N.S.W.) said that it should be appreciated that expert care was needed for the chronically sick. It was, however, possible to nurse many chronically ill patients in their own homes with proper domiciliary care based on a regional hospital. At the same time the management of the chronically ill required to be supervised by a physician properly trained and experienced in that kind of work. In general, the rehabilitation of the chronically ill needed more skills than the treatment of patients with many of the acute illnesses. There was no reason why the chronically ill patients should not be admitted into a general hospital when they needed the kind of care that a general hospital provided. In general it was cheaper to associate special hospitals for the chronically ill with the general hospital than to build a special unit. That reduced overhead costs, and services such as steam and cooking could be provided more cheaply by a large central hospital than by a series of small specialist hospitals. In Newcastle an average of 75 patients were cared for daily by the home care programme, thus eliminating the need for a 100-bed hospital.

QUESTION 3.—For such smaller unit hospitals and for similar hospitals in country towns, what are the merits of the single-storey construction *versus* multiple-storey?

J. M. M. DREW (Tasmania) said that heating of the building was the main factor. In Western Australia, Queensland and parts of New South Wales and South Australia, where heating was not important, the single-storey building had much to recommend it, for it ensured maximum ventilation. In Tasmania, where heating of the building was an important factor, the multi-storey building was to be preferred.

C. J. McCAFFREY (N.S.W.) said that in the United States a compromise seemed to have been reached in the development of two-storey buildings. A factor not considered in the construction of many hospitals was the need for flexibility. There was much to be said for small four-bed units which were self-contained and which could be used for males, females, infants or children as the need arose.

M. S. BENSON (Victoria) said that each hospital should be designed to meet the needs of the community, and flexibility should be extended not only to wards but to all units, such as operating theatres.

QUESTION 4.—Would the panel discuss hospitals for the chronically sick, particularly the aged, and domiciliary visiting?

J. M. M. DREW (Tasmania) said that in the north and south of Tasmania attempts had been made to run hospitals for the chronically sick. The advantage was that those hospitals had been conducted with fewer trained staff, and that tended to increase the number of beds for the acutely ill in the general hospital. Domiciliary visiting could also reduce the cost of caring for the sick. It had not, however, met with much enthusiasm; the general practitioner was not keen that any other doctor should visit patients outside the hospital when the patients were under the care of a general practitioner.

C. J. McCAFFREY (N.S.W.) said that any home care programme must be based on a hospital and must provide services for ex-patients of the hospital. To operate effectively each patient must be evaluated and full inquiries made whether the home could provide the necessary basic requirements for adequate care. In Newcastle difficulties had not been encountered with the general practitioner. It had been possible to arrange for the general practitioner to provide the medical care under the Pensions Scheme, but the hospital provided the general nursing and equipment needed. Home care would not work unless the overall supervision was in the hands of a person trained to do that work.

J. L. GROVE (Tasmania) said that the problem was an important one which had not been tackled satisfactorily. In Launceston a 110-bed unit for old people had been opened two years previously, and now three-quarters of the beds were occupied with chronically ill old people. So long as that service was available, people would use the beds in that way. It was important to develop a programme outside the hospital and to get people to look after their old and chronically ill patients. It was important to convert the doctor to that kind of thinking. As stated by one of the earlier speakers, the general practitioner was all too quick to send patients into hospital.

G. BROWNE (N.S.W.) asked Dr. McCaffrey how he would apportion his staff between acute and chronic wards of a hospital.

Dr. McCaffrey said that for a hospital to operate satisfactorily all work must be functionalized and non-nursing work carried out by non-nursing staff; in his hospital all sterilization was done by non-nursing staff in a central unit, and similarly with other aspects of nursing. The actual type of nursing should determine the staffing of a ward, and it should not be done on a rule-of-thumb basis.

Another speaker pointed out that hospitals engaged in the training of nurses needed to give nurses experience in sterilizing materials, and they might not get that if it was done by a non-nursing staff in a central place.

Infant Scurvy in Relation to Infant Welfare Work.

JAN FINNEY (Victoria) read a paper entitled "A Survey of 38 Cases of Infant Scurvy in Relation to Infant Welfare Work". She said that at the Royal Children's Hospital, Melbourne, over 40 cases of scurvy were diagnosed in 1956, and one of the affected infants died. There was considerable unawareness of the prevalence of the disease. The investigation was undertaken to discover why with improved standards of living and improved knowledge of nutritional requirements, that disease not only still occurred, but was apparently on the increase. The occurrence of the disease indicated an apparent gap in the excellent infant welfare service of Victoria. Whilst the diagnosis of scurvy could be reasonably certain on clinical grounds, absolute confirmation was obtained radiologically. Thus it was found most convenient to obtain notification of cases through the radiological departments of public hospitals. The investigation, with an examination of the hospital records and X-ray films, was followed by a visit to the infant welfare centre which corresponded to the address given in the patient's history. The case was discussed with the infant welfare sister, and her records were examined. Particular reference was made to the feeding history, to the advice that had been given with regard to orange juice and added vitamins, and to the regularity with which the mother had attended the centre. If the mother had failed to attend or had ceased attending, an inquiry was made as to the amount of follow-up investigations and home visiting the sister had done. Next the mother was visited in her home. The purpose of the visit was explained to her, and in all cases the mother had been found to be most cooperative, though in some cases a mother's inability to speak English limited the information obtained. The type of home was assessed from all relevant points of view. Discussing the findings Dr. Finney said that between February 1 and November 30, 1957, forty cases of scurvy had been notified. Two were from the country and were not further investigated. The history was typical and virtually the same in all cases. In all but two cases the diagnosis was confirmed by typical X-ray findings. In two cases the diagnosis was made on clinical grounds alone. Both children had severe malnutrition and associated rickets, the X-ray picture of which masked the scurvy. The youngest patient in the series was aged seven months, and ages of onset ranged from seven to thirteen months with a peak at nine months. Investigation of the patient's place in the family emphasized the vulnerability of the last child of a large family. No patient had been breast-fed beyond the age of three months. Thirty-four of the infants did not receive orange juice for various reasons. Only four infants received adequate supplementary vitamin preparation. Of the mothers of those four children, one boiled the vitamins in the milk. One took the supplement from a bottle that had been partly used and then stored for many months; analysis showed it almost devoid of ascorbic acid. As a result of that analysis the manufacturers were no longer producing the large-size bottles. The two other babies,

who were said to have received adequate ascorbic acid, recovered rapidly when it was given by mouth, and the mother's account was regarded as not acceptable.

Dr. Finney said that there appeared to be some correlation between the price of oranges and the giving of orange juice. During the months of March, April and May, when the incidence of scurvy was greatest, the price of oranges had risen to phenomenal heights. Investigations of the social pattern showed that seven of the patients came in an income group without real financial difficulty. Twenty-seven were from an artisan group in which the father was unskilled or semi-skilled, and the general educational standard of the mother was low. New Australian families on the same low income appeared to maintain a better standard of living. In two families there was extreme poverty. One mother was a widow and one had been deserted by her husband; both the women lived with their parents at a standard comparable with the main bulk of the parents. Five mothers were in employment outside their home; three of the children concerned were cared for by the maternal grandmother and two by neighbours. Eleven patients were the children of New Australian parents. Investigations of the attendance at child and infant welfare centres showed that 14 patients had never attended a centre, nine attended a centre regularly and were attending at the time when the scurvy was diagnosed, four attended once only and the mothers were not interested. Frequent follow-up home visits were made by the clinic sister. Eleven patients ceased attending the infant welfare centres before the age of seven months. All the mothers who attended health centres regularly were advised to give their babies added vitamins, but for a number of reasons the advice was either not accepted or not carried out. None of the mothers knew anything about vitamins or the possibility of developing specific illness from lack of vitamins. The municipalities which had the highest incidence of scurvy were areas in which housing-commission schemes were under way. They had taken the families from most of the inner slum clearance areas.

Dr. Finney said in conclusion that the investigation provided a concept of infant welfare work that could be applied equally well to aspects other than the eradication of scurvy. In the infant welfare centre the sister must know what advice to give the mothers. Breast-fed babies did not get scurvy; the artificially fed baby was vulnerable after five months. It followed that breast feeding should be encouraged; and if it failed, the mother should be advised that a supplementary source of absorbic acid was necessary. If that advice was to reach all mothers, far more home-visiting was necessary. For the advice to be accepted by the mother she must be given some logical reason for it. If she accepted the advice, she must be given explicit instructions on how to carry it out. Special consideration must be given to New Australians in order that such a service should be satisfactorily carried out. The case load of each infant welfare sister should not be too heavy. It had been estimated that 200 birth notifications per year were the optimum number that would permit one infant welfare sister to provide such a service. Dr. Finney finally asked whether the time had not arrived when some scheme should be introduced whereby vitamin supplements for infants could be obtained either free or at reduced cost. She thought that they were as important as many of the drugs now on the free list.

GRACE CUTHBERT BROWNE said that the public health practice in New South Wales was to circulate a detailed statement on vitamin *C* requirements, costs, etc., to all sisters working in the Baby Health Centres. The Royal Alexandra Hospital for Children notified all cases of scurvy to the Division of Maternal and Baby Welfare, and a follow-up was arranged. All suspected cases were notified by the Baby Health Centre sisters to head office. Translations into 16 languages were available to overcome the difficulties experienced in advising New Australian mothers. In January each year a reminder concerning the minor manifestations of scurvy and the need for special emphasis on the importance of daily intake of vitamin *C* was circulated to all Baby Health Centres. Vitamin *C* tablets were provided free by the Commonwealth Government and were available for mothers unable to afford to purchase tablets if required.

F. W. CLEMENTS (N.S.W.) said that the study emphasized the need for a new type of health education based upon person-to-person contact or preferably on group discussion. Unfortunately, health departments in Australia were ill equipped to undertake that kind of work. Special efforts would be needed to prepare health workers, doctors, nurses and others to carry out that type of education.

M. S. BENSON (Victoria) said that experience in Geelong paralleled that in Melbourne, in that no cases of infantile scurvy had been observed in the past 12 months. He accepted as a challenge to hospital administrators the fact that Dr. Finney had developed such an excellent and original paper on a programme of objective fact-finding through the hospital X-ray departments; such fact-finding was possible in very few diseases. Surely many similar excellent papers could be produced if hospital record departments, even in provincial hospitals, could provide suitable cross-indexing and analysis.

The Role of the General Practitioner in Public Hospital Practice.

R. J. D. TURNBULL (Tasmania) read a paper entitled "The Role of the General Practitioner in Public Hospital Practice". He said that in the present age of specialization the general practitioner was still referred to, perhaps ironically, as the backbone of the medical profession. Nevertheless he was gradually being replaced by specialists, and nowhere had that replacement been so accelerated as in the public hospitals, to such an extent that his extinction had been complete in the teaching hospitals. Although the majority of medical students finally entered general practice, during their training they had not even come into contact with general practice. Dr. Turnbull said that there were three essential requirements in the treatment of any patient: accurate diagnosis, efficient treatment and faith by the patient in his doctor. The first two were concomitant, but neither would do much without the third. Dr. Turnbull then quoted the definition of a general practitioner given by J. H. Hunt, of London: "A doctor in direct touch with patients who accepts continuing responsibility for providing or arranging their general medical care, which includes the prevention and treatment of any illness or injury affecting the mind or any part of the body." The concept of the committee on general practice in the National Health Service was almost identical. Dr. Turnbull then mentioned the anomaly by which the principle of free choice of doctor was denied the moment the patient was admitted to a public hospital. The result was that many patients who could not afford to do so chose to enter private hospitals. Dr. Turnbull asked why, if a general practitioner was capable of operating upon a patient who could afford to enter a private hospital, that right should be taken away from the general practitioner and the patient because the latter was poor. Such a state of affairs should not be permitted to exist; the patient was thus being deprived of the essentials of his treatment because he lost the practitioner in whom he had the most faith. The committee of the Central Health Services Council had reported that a general practitioner service was fundamental for the best practice of medicine, that it was in the best interests of the patient and that the present division between hospital and general medical services made it very difficult for the general practitioner who wished to develop a special skill to exercise it in hospital practice. The committee went on to say that the general practitioner after a patient's admission to hospital should still be concerned with his medical progress, and should therefore have at his disposal beds in public hospitals. That apparently was forbidden in the large cities. Dr. Turnbull went on to say that there had now been developed a hospital system entirely staffed by specialists, of whom very few had ever been in general practice. That hospital system provided that an out-patients' department where patients presented themselves with the most difficult signs and symptoms should be run by juniors, whereas senior specialists looked after the in-patients, in whom usually the disease had already advanced

far enough to make a diagnosis plain, and for whom more treatment only was necessary. He asked whether they should not in fact appoint the senior members to the staff of the out-patients' departments and allow them a few in-patients' beds for diagnosis in the more difficult cases. At present over 60% of people admitted to hospitals did not require specialist treatment and could be capably looked after by their own doctors. It was necessary for the raising of the standard of general practice that general practitioners have access to hospital beds and be able to talk to resident medical officers and specialists about their patients. If all diagnostic facilities in a public hospital were made directly available to general practitioners, that could quite easily eliminate overcrowding in hospitals, since at the present time patients had to be admitted or sent to the out-patient department so that diagnostic facilities could be used. Dr. Turnbull then quoted five main reasons why general practitioners wished to have general practitioner beds in hospitals: (i) to be able to diagnose and treat the illnesses of their own patients; (ii) to be able to consult with specialists over those patients; (iii) to foster their own post-graduate education; (iv) to acquire and maintain experience in special subjects in which they were interested; (v) to be able to instruct students on problems of general practice.

Dr. Turnbull said that he thought that the fourth of the five reasons given by Dr. John Hunt was very important. General practitioners who had taken up special subjects in which they were particularly interested had often been called general practitioner consultants, but of course the emphasis should be on the general practitioner portion, because they should restrict themselves to the general practitioner aspect of their specialty and not become consultants working in general practice. Such a scheme was of great value in the modern tendency towards the formation of group practices. General practitioners in group practices with special interests should be given posts at public hospitals, first as clinical assistants and then as honorary medical officers in charge of their departments. In Tasmania any general practitioner who received an appointment as an honorary medical officer at any public hospital was appointed only on a temporary annual basis until he had served in that post for at least seven years. If, during that time, a practitioner of consultant status applied for that post, the general practitioner would be superseded; but after the seven years the general practitioner would have an equal chance with the consultant, and was then appointed on the same terms as those with higher degrees. The committee also recommended the establishment of clinical assistantships for general practitioners in hospitals. They further recommended that hospital selection committees should have a general practitioner as a member, and that it should be easier for general practitioners to secure appointments in hospital specialist practice. Referring to the teaching that students should have in the art of general practice, Dr. Turnbull said that as a majority of those students would be entering general practice, it was not only illogical but unfitting that they should receive no training in that branch of medicine.

Throughout the world the necessity for having a department of general practice in university medical schools was becoming more apparent. Another major suggestion made by the committee was that medical students should be given adequate opportunity to study the scope of general practice, and that as much time should be given to that subject as to the practice of surgery. The present scheme arranged by the New South Wales Faculty of the College of General Practitioners was worthy of mention. Residents during their period of residentship in one of Australia's largest hospital's had to do two months in general practice, the first four weeks as an assistant to the selected general practitioner and the final four weeks working on their own as his *locum tenens*. Dr. Turnbull said that he was aware that opposition to general practitioners came from the specialists, who maintained that their standard would be lowered because of less work; but as there were more general practitioners than specialists, it was obvious that more good would come from the raising of the general practitioners' standards. He firmly believed that every patient admitted to a public hospital should be cared for by his general practitioner, who would treat him throughout his illness; that included any surgery which might be necessary, and which the general practitioner was capable of performing. Specialists would still be necessary for consultative work. Dr. Turnbull said that he doubted very much whether many general practitioners would attempt surgery of which they were not capable. They would not thus expose themselves to ridicule by their colleagues on the hospital staff. The present scheme of the College of General Practitioners to have a diploma course in surgery for general practitioners might overcome those difficulties. He pointed out that the general practitioner was allowed by law to carry out major surgery in a private hospital; why, then, should he not be able to do so in a public hospital? He and the specialists working together would be of great mutual benefit. Dr. Turnbull finally asked why if they accepted the committee's finding that general practice was fundamental for the best practice of medicine and best for the patient, they should forgo that principle as soon as the patient was admitted to hospital. He believed that if the general practitioner should send his patient to a public hospital, he should follow him in and order the necessary treatment and investigations, asking for consultations when in doubt.

J. L. GROVE (Tasmania) said that it was very important to confine the discussion to the actual subject, the role of the general practitioner in public hospital practice. Dr. Turnbull had made a clear submission, that general practitioners should have completely free access to public hospital beds for their patients. Was that desirable at all in part or wholly? What real arguments had Dr. Turnbull put up? Dr. Grove referred first to the faith of the patient in his doctor. He said that that, of course, could be a detriment. It was extraordinary what faith might cause a patient to swallow, and that was not restricted to physic. The faith argument was not acceptable. The general practitioner, referring a patient to a specialist with something he could not himself handle—for example, a prostate requiring transurethral resection—built up that patient's faith in the new doctor, so that he was completely satisfied to be temporarily transferred. It should be perfectly easy to transmit that faith on any reference to a public hospital. With regard to the lack of background information when the patient came under a specialist in hospital, Dr. Grove agreed that that was the position, but it was not a strong point. Patients frequently changed their doctors outside hospitals and got by quite well. Certainly general practitioners should come into the hospitals more. They must make the effort and must be encouraged by hospital staffs. On the question of lack of education of the student, Dr. Grove said that surely nine-tenths of general practice was of a domiciliary or consulting nature, and could only be taught there. Clearly, some apprenticeship system was required, and that could not be a function of a hospital. It was not therefore applicable to the subject. Turning to the statement that post-graduate education of the general practitioner was not well served by the present system, Dr. Grove agreed that it was a serious and very real point. He said that it was not, of course, impossible with the present system for a general practitioner so minded to get post-graduate education to lead him to specialist rank. To make available hospital beds to general practitioners would not solve the problem. Practice alone did not make perfect in medicine. It needed active proper study and proper teaching, and those were not a necessary corollary of the opening of hospital beds to general practitioners. To improve medical standards by that method would of necessity involve the acceptance of some kind of supervision, which, unfortunately, the medical profession generally labelled regimentation, and which was anathema to most practitioners. However, despite arguments to the contrary, the point of post-graduate education and standards was very well taken. Dr. Grove then referred to the statement that it was illogical to condone general practitioners conducting a whole range of medical services in private hospitals and to refuse that in public hospitals. He said that Dr. Turnbull might have gone further and pointed out

that there was almost complete dependence on the general practitioner for the services of country hospitals in Tasmania. There was no doubt that harmony within the profession and, to an extent, between the hospitals was subjected to strain by that state of affairs. It might well be asked what the public felt about the problem. The ready acceptance of the medical and hospital benefits systems with the very clear movement from public hospitals to private practice was undoubtedly due in part to the unrestricted choice of doctor it implied. It seemed to Dr. Grove that the only very important argument centred around the over-all standard of general practice in Australia. That must depend on the necessity for practitioners constantly to face up to comparison with the work of other doctors so far as hospital work was concerned, and to make regular contact with those able to impart special knowledge. It was up to the profession to work out a way to keep all general practitioners in close contact with hospitals. If the public and the profession desired Dr. Turnbull's solution, Dr. Grove believed that it was possible to get over the apparent obstacles except the expense. Dr. Grove considered that Dr. Turnbull's submission was desirable in part and could possibly be best achieved by abandoning the present system of separate private hospitals and establishing proper medical centres which would cater for all grades of practice, private, intermediate and public, under the one roof. All would then work together. He could not, however, see how it was possible to abandon sections of beds under the care of specialists maintained for the teaching of students and resident medical officers and requiring the most rigid standards of selection of those in charge.

MACDONALD TOW (Tasmania) said that psychological medicine was presented in more and more different guises. He congratulated Dr. Turnbull on his magnificent understatement of the importance of that most effective of all therapeutic weapons, the faith which the patient had in his doctor. Naturally Dr. Turnbull did not look at his proposals through psychological eyes, though he made the essential point. However, he separated the patient's faith in his doctor from what he called efficient treatment. Dr. Tow said that he would like to put it that that faith was an essential ingredient of efficient treatment. The same viewpoint made it difficult to fit other very important concepts into this simple scheme—excellent largely because it was simple—though, again, he took good account of them separately. For example, he rightly stressed the importance of treating a patient not only as a case but as an individual—and even more important, as an individual in relation to the background of his family and the environment in which he lived. In the same way Dr. Turnbull went on to introduce his main proposal, that the general practitioner should have access to hospital beds and be able to talk to the physicians, surgeons and residents about his patients, so as to improve the standard of care of those patients and so as to improve his own knowledge. Dr. Turnbull held that there were a large number of reasons why it would be good to have the general practitioner right in the hospital, with care of his own beds, and he named a number of clinical, economic and administrative points in favour of that, particularly the suggestion that up to 90% of the patients in public hospitals did not require the diagnostic acumen of the skilled specialist. It probably was true that senior physicians and surgeons on the hospital staff were today devoting a great proportion of time to simple and routine cases in which in-patient treatment was required in well-equipped hospitals, but in which the skills and techniques of specialized doctors were not required. The special knowledge and expert skills which resulted from long experience in one specialty were therefore being wasted. Moreover, those skills were being dulled through lack of practice rather than sharpened by constant use. Clearly that was a cogent argument; most hospital patients did not need specialist skill, therefore it was wasted. However, if they were going to look at things in the way Dr. Turnbull suggested—and after all, that was very much at one with much of their present thinking about social developments in medicine—then he (Dr. Tow) should say that there was one reason above all which justified his suggestion. That was the fact that the general practitioner would bring to his patients in hospital the vast store of knowledge he had of their whole upbringing, family life and social background, and that that reason alone was more important than each of the others taken individually. Again, Dr. Turnbull did not make directly, though he did by implication, the point that there was already a reverse of that coin operating. Dr. Tow suggested that when the physician or surgeon, psychiatrist or obstetrician made his round under present-day normal hospital conditions, he was completely ignorant of the background of the patients whom he saw on that round. Because of that ignorance, he had to make inquiries about it from his hospital almoner; and if the hospital was a good one, he had to employ social workers, psychologists, health visitors and other expensive auxiliaries to ferret out the essential information which was known to the general practitioner from the start. Dr. Tow believed that that growing army of people represented many dangers. It had come into being as the patient had been gradually removed from his family doctor and as his management had been increasingly fragmented. Dr. Tow did not know whether that was cause and effect. However, they all knew that that army of auxiliaries was costing a great deal of money while the general practitioner in the United Kingdom earned insufficient. There was probably a great deal of psychotherapy already going on in general hospitals today under another guise. That brought him back to another facet of his opening point. He had said that he thought Dr. Turnbull's administrative suggestions were only an outward and visible manifestation of something therapeutically far more important. Psychological consultation in the general hospital taught them that a great many patients were at present admitted to hospital under a number of different headings who actually needed psychotherapeutic help; if the house physician was a good one, they often got it.

Dr. Tow finally said that for those reasons he thought that Dr. Turnbull should have presented his thesis in two distinct stages—the basic reason for his changes, and all the good things which would follow from them—rather than list all those good things as further reasons. Even so, his main point was that the personal relation existing between a patient and his own family doctor was a theoretically sound and pragmatically obvious reason for establishing a general practitioner hospital service of the kind he outlined. Of course, his proposal turned the tide against tradition. Dr. Tow himself thought that at the present point in the development of medicine his proposal must receive very great consideration, and that underlying it were implications as academically sound as they were politically provocative.

J. LINDELL (Victoria) supported Dr. Turnbull's suggestion that general practitioners should be admitted to work in public hospitals, but considered that it should be only in a supervised capacity. That would be possible only in hospitals where the honorary system was in force and not where the visiting staff were paid on a sessional basis.

D. DONALD (Victoria) said that in Melbourne a number of senior students had the opportunity to spend some time each with a general practitioner and that had proved a most effective way of teaching the student the significance of general practice.

Another speaker said that he could not agree with the suggestion made by Dr. Grove that patients changed their doctors frequently. It was not a common experience in his own State, South Australia, nor could he agree with the quick manner in which Dr. Grove had dismissed the suggestion that a patient's faith in his doctor was unimportant. It might be possible to transfer a well-held faith to a specialist to whom it was necessary to refer the patient, but it was not possible to do that when the patient was transferred to an impersonal public hospital. In general practice 50% of patients did not have an organic lesion. Faith in the doctor was important for the successful treatment of those patients.

S. A. MCDONNELL (Queensland) supported Dr. Turnbull's suggestion that general practitioners should be on the staff of teaching hospitals, and recounted his own lack of

knowledge about certain problems commonly met with in the early stages of his own general practice. In his opinion, general practitioners in a teaching hospital would have taught him many of those things.

C. J. McCAFFREY (N.S.W.) pointed out that the general practitioner wanted to participate in the most difficult tasks of specialization, namely, general surgery and general medicine. It was not possible to turn the clock back. He supported the suggestion that general practitioners should join the staff of general hospitals as integrated staff, but not as specialists.

Future Medical Service in Hospitals.

J. LINDELL (Victoria) read a paper entitled "Future Medical Service in Hospitals," in which he discussed the professional and administrative responsibilities of doctors as they concerned hospitals, individually and collectively. He proposed a method by which professional competence might be assessed and responsibility delegated accordingly. The method was described as a medical audit, based on the idea of comparing the results actually attained in treating a patient with those results which might reasonably be expected from the prognosis, the comparison being made from recorded data. It required a comprehensive record of the case, showing particularly the pathology of the patient's condition, his ability to combat that pathology, the means taken to effect a recovery and the results attained. Every case was described as elective, emergency or palliative, on the patient's admission to hospital. In each class the risk was described as good, fair or bad. The doctor was thus required to place his patient in one of nine prognostic categories, and he was also required to state his reasons. The results were studied by a nominee or a committee of the medical staff, or by a doctor specially appointed for the purpose, who assessed them, decided whether or not there had been an error and referred cases in which action was indicated to the medical staff. A permanent record of errors was not kept, but errors were not ignored. From the audit the following might result: (i) Each member of the medical staff might have a record of his successes and failures. (ii) Privileges might be granted to members of the staff according to competence, based on consideration by the staff of the recorded data. (iii) Appointments and promotions would be based on the same evidence of competence, though other factors would be considered. (iv) Deficiencies in equipment and errors in general procedure and administration would be discovered and means taken for their correction. Dr. Lindell went on to say that if the data were not to be useless, there were certain things that the medical staff must do. (i) The staff must constitute itself as a body corporate dedicated to the welfare of every hospital patient. (ii) It must elect from amongst its members one (called by the Americans a chief of staff) who should be responsible for implementing the professional decisions of the staff. In larger hospitals the members of each specialty should elect a senior (called the chief of service in the U.S.A.) who should be similarly responsible within his own service. (iii) The staff must see to it that each doctor undertook only such medical or surgical treatment as he was fitted by training and experience to do. (iv) When necessary, the staff must discipline those members of the staff who departed from decisions of the body corporate. (v) It must make attendance at staff meetings obligatory, and take disciplinary action against offenders. (vi) It must see that all tissue excised at operations was pathologically examined and that the results were recorded. (vii) It must encourage frequent consultation as a policy, and demand it for seriously ill patients. (viii) It must see that comprehensive records were kept for all patients. (ix) It must advise the administration on means of improving patient service.

Dr. Lindell said that many would find objections to such a scheme; however, in his opinion it would improve hospital standards of medicine and surgery, it would act as an educational medium for all members of the profession and particularly for juniors, and it would place a virtual ban on unnecessary or incompetent work. It would be the responsibility of the State and of hospital authorities to see that adequate machinery and clerical assistance were made available to provide the records with which doctors could work. The medical audit was therefore a triple responsibility falling upon the State, the hospital authorities and the doctors. Dr. Lindell finally said that there was often a confusion of thought between the doctor's two responsibilities in hospital—professional and administrative. In his administrative responsibilities he must work as a member of the medical team, and that involved the individual doctor in a compulsion, in a need to sacrifice his own wishes to the will of the majority. He was thus inclined to resent it. The matter was readily settled if the medical staff was prepared to act as a corporate body in matters causing friction, to make its decisions after consultation (with give and take when necessary), but to ensure that all its members adhered to the decision of the majority and, if necessary, to discipline those members who did not. In Dr. Lindell's opinion economic necessity would force hospitals to coordinate their services. Doctors had a responsibility to initiate that move if they were to escape external direction.

MACDONALD TOW (Tasmania) said that Dr. Lindell's suggestion could lead to a most sterile and dangerous set of circumstances. He asked what proof Dr. Lindell had that a medical audit could lead to a better service. Several writers in the *British Medical Journal* in the last 27 months had stressed the dangers of the audit. An audit should come naturally from university departments of social medicine.

M. S. BENSON (Victoria) disagreed with Dr. Macdonald Tow. He said that, far from producing a sterile or stultifying influence, a medical audit such as had been in existence in a modified form in Geelong for a couple of years did improve the work of a hospital by improving the standards of individual honorary medical officers, who could accept advice from the audit committee, their own representatives, more easily than they could from the administration or from any third party. Further, and most important, the audit pointed out factual weaknesses in the hospital services and enabled the staff to plan to rectify those effectively and harmoniously. For example, the audit had so demonstrated the need for the establishment of the diabetic clinic that prior opposition from certain sections was converted to support for such a provision.

Summing up from the chair, PROFESSOR D. GORDON (Queensland) said that the Section had now had four sessions devoted to hospital administration. On the previous day there had been a lively, uninhibited debate, which had lasted for quite a deal of the morning, and on the present occasion discussion had been more restrained, but nevertheless prolonged and forceful. Two schools of opinion had from the first been most evident. In the presidential address he had pointed out that the public hospital systems were costing the States up to £5 per head of population *per annum*, and that in the lesser States it was a heavy burden, which meant that things like education, roads, housing and other developmental projects went short. In the quiz session Dr. McCaffrey had said, in effect, that if they used hospitals efficiently, there would be no need for six to eight beds per thousand of population; it would be possible to get by quite easily with four, three, or in some cases even two beds per thousand. Overseas that was the case. Such a system, however, required a very tight compact control by salaried medical officers over admissions and discharges and very strict control of patients. It obviously meant that domiciliary visiting by hospital staffs was a necessity. A number present did not accept that view, and said that it involved regimentation which would not be accepted by patients, politicians or doctors, even though it halved the capital maintenance cost of hospitals. At the present session, Dr. Turnbull had advocated the admission to hospital staffs of general practitioners. That had been supported strongly as a measure to encourage better psychosomatic medicine to give the patients what they desired and as something more in keeping with the Australian way of life, even though it would increase the bed states and mean greater cost. Dr. McCaffrey and his supporters would regard that as a

complete shambles. Now Dr. Lindell had proposed a strict self-imposed audit on professional work in hospitals, and Dr. Benson of Geelong Hospital had supported him. That had horrified quite a number present. Dr. Lindell had said that if the members of the profession did not impose it on themselves, others would impose it on them. Thus there were two sides—those who said that in the interests of efficiency and economy it was necessary to have some regimentation and those who said that in the interests of freedom and humanity that was abhorrent. Professor Gordon said that he would point out that this was a democracy and that ultimately it was necessary to take some notice of what the people wanted. However, it was up to the medical profession to tell the patients what the profession thought was in the patients' best interests with regard to hospitalization, and it was up to the profession to educate the people to demand wise use of their hospitals. Professor Gordon did not know the answer to the problem which the two schools of thought had raised. It was almost the basic problem of any democratic system, how much freedom should be surrendered in the interests of efficiency.

(To be continued.)

Correspondence.

PELVIC EXENTERATION.

SIR: Dr. J. Cameron Loxton's letter in THE MEDICAL JOURNAL OF AUSTRALIA of May 17, 1958, will have misled all readers who have not visited the Christie Hospital in Manchester. A pelvic examination is not performed at the time of radium insertion for carcinoma of the cervix, for the good reason that at this hospital the insertion is carried out in the knee-chest position in order to facilitate the introduction of adequate packing between the radium sources and the rectum. However, all patients have previously been examined and staged by a gynæcologist and a radiotherapist.

Yours, etc.,

K. W. MEAD.

The Queensland Radium Institute,
Brisbane Base Hospitals,
Brisbane.
May 23, 1958.

SIR: With reference to Mr. J. C. Loxton's letter of May 17, several points must be answered. In regard to staging and the inclusion of earlier cases in Stages III and IV, I would like to point out that all cases of carcinoma of the cervix at the Christie Hospital, which is mentioned specifically by Mr. Loxton, are seen before admission by a senior gynæcologist and radiotherapist and staged at that examination. In my time these were respectively Professor W. C. Morris and the late Miss M. C. Tod. So the statement that radium is introduced without a vaginal examination cannot be seriously considered.

In regard to radiotherapists seldom mentioning mortality and morbidity from their treatment, perhaps the reasons are that the mortality is so low as not to require specific comment. Morbidity does exist, but I do not think is of such a degree as not to be acceptable when one can offer a chance of cure. However, mortality as a result of pelvic exenteration is 18%, and I think the morbidity from such an operation is of considerable degree—a recent article by Douglas and Sweeney[1] lists the post-operative complications in one series as 74% showing bilateral hydronephrosis; and I do not think I can do better than quote from this article in conclusion:

> Statistics never indicate the full extent of what this procedure means in terms of "living" versus "survival". For a limited number of patients the long-term "living" has appeared to be good, but for a much larger number the "survival" has been extremely difficult and discouraging.

Yours, etc.,

PHILIP CORLETTE.

135 Macquarie Street,
Sydney,
June 5, 1958.

[1] *Am. J. Obst. & Gynec.*, June, 1957.

Honours.

BIRTHDAY HONOURS.

HER MAJESTY THE QUEEN has been pleased to confer the following honours on Australian medical practitioners:

Sir Macfarlane Burnet, of Melbourne, has been created a member of the Order of Merit.

Professor John Carew Eccles, of Canberra, Dr. Benjamin Thomas Edye, of Sydney, and Dr. Kenneth Barron Fraser, of Brisbane, have been created Knights Bachelor.

Group Captain Roy Brasmere Davis, of Melbourne, has been created an officer of the Most Excellent Order of the British Empire (Military Division).

Diary for the Month.

JUNE 24.—New South Wales Branch, B.M.A.: Hospitals Committee.
JUNE 25.—South Australian Branch, B.M.A.: Annual Meeting.
JUNE 25.—Victorian Branch, B.M.A.: Council Meeting.
JUNE 26.—New South Wales Branch, B.M.A.: Branch Meeting.
JUNE 27.—Queensland Branch, B.M.A.: Council Meeting.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in New South Wales. Anti-Tuberculosis Association of New South Wales.

South Australian Branch (Honorary Secretary, 80 Brougham Place, North Adelaide): All contract practice appointments in South Australia.

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ALL articles submitted for publication in this Journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given: surname of author, initials of author, year, full title of article, name of journal, volume, number of first page of the article. The abbreviations used for the titles of journals are those adopted by the Quarterly Cumulative Index Medicus. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors submitting illustrations are asked, if possible, to provide the originals (not photographic copies) of line drawings, graphs and diagrams, and prints from the original negatives of photomicrographs. Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

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